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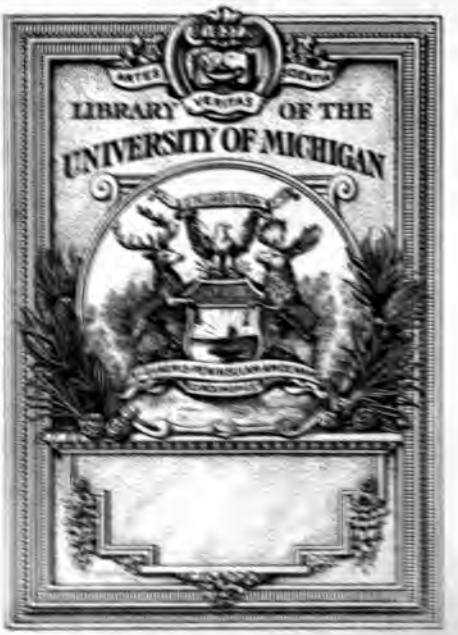
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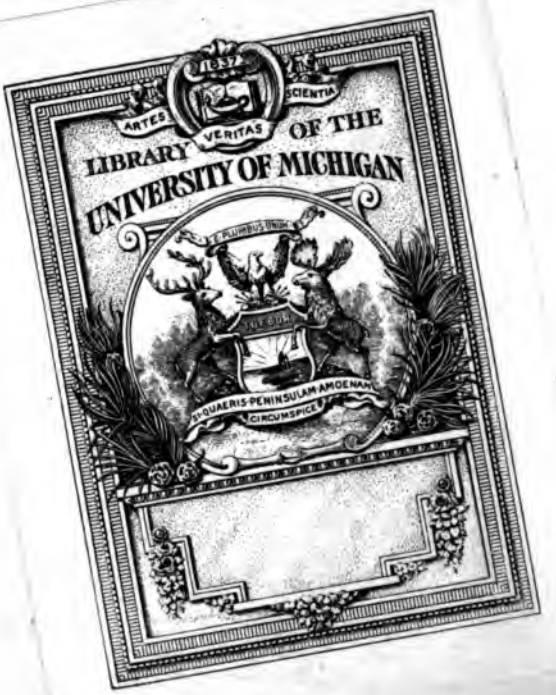
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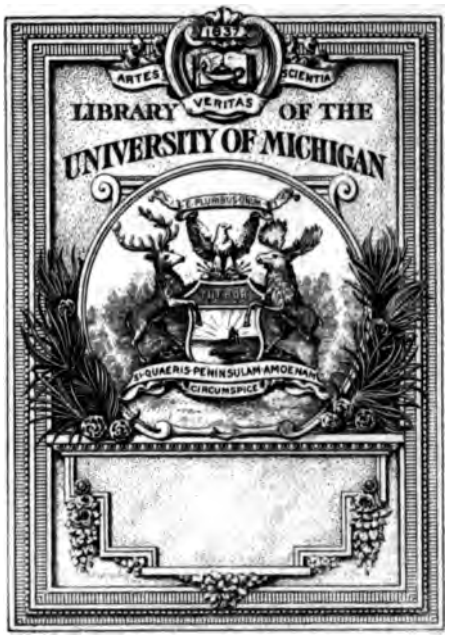
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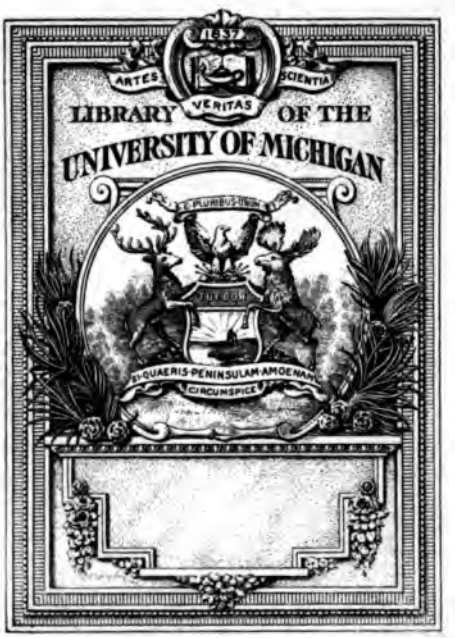
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THE

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Original Communications.

ARTICLE I.

THE TREATMENT OF ERYSIPELAS.

G. FRANK LYDSTON, M.D., Late Resident Surgeon Charity and State Emigration Hospitals, New York. Lecturer on Genito-Urinary Diseases, College of Physicians and Surgeons, Chicago. (Read before the Chicago Pathological Society, June 26, 1882.)

There are few diseases which have called forth a greater variety of methods of treatment in times past than erysipelas, and there are few diseases the management of which is at the present time of a more routine nature.

Since the introduction of the muriated tincture of iron into its treatment, and its high recommendation as a specific for the affection, it has been prescribed by physicians almost universally as a matter of routine practice.

The reputation it has gained has, however, been sustained by experience. The local measures which have been recommended, and which are still in favor with different practitioners, are greatly varied as the taste of the individual may select. The

application of cold has been used with especial frequency, and applications of nitrate of silver, iodine, and various dusting powders, have had, and still have, their advocates.

There has been a tendency to either one of two extremes in the treatment of erysipelas, viz.: to keep in view its constitutional character, and to depend mainly upon the so-called specifics; or to consider the disease as merely of an inflammatory nature, and to treat it as a local inflammation. There is really little to offer that is new in the treatment of erysipelas, but as a large number of cases, especially of the severer types of the disease, do not usually come to the notice of the general practitioner, and are seldom seen under circumstances favorable for comparison of the results of different remedial measures, excepting by the surgeons of the larger hospitals, a general survey of the treatment found to be most useful in an observation of several hundred cases, may be of service. I shall endeavor to say but little aside from the treatment of the disease, merely mentioning a few of the interesting or practical points which I have had the opportunity of observing.

Erysipelas is usually classified as, first, simple cutaneous; second, cellulo-cutaneous, or œdematous (Lawrence); and third, cellular or malignant, the latter being also termed "diffuse cellulitis." The principles which govern the treatment of these different forms are essentially the same in all, and the classification is itself somewhat arbitrary, as is evident to any one who has observed the affection to any extent; for many cases of cutaneous erysipelas, particularly of the face, are accompanied by a certain amount of cellulo-cutaneous inflammation and suppuration; often with considerable sloughing of the tissues. This is seen especially in the tendency to suppuration and sloughing of the eyelids, and to the formation and burrowing of pus beneath the scalp in cutaneous erysipelas of the head and face. We frequently, also, see cases of the cellulo-cutaneous form which are essentially of a malignant type from their commencement. Cellulo-cutaneous erysipelas of the genital region, for example, has a special tendency to malignancy.

The first consideration in regard to the management of erysipelas, is evidently the question of prophylaxis.

Erysipelas is undoubtedly contagious, and is by some authorities regarded as extremely so. It appears to me, however, that its contagiousness is somewhat overestimated. Having had a large general surgical service, and a considerable number of cases of erysipelas under my charge at the same time, I have enjoyed an excellent opportunity of observing the contagious properties of the disease. The cases of erysipelas which developed primarily in the surgical wards were very few, but cases were from time to time accidentally introduced into the wards, through mistakes in the distribution of the patients. Such cases were, of course, immediately isolated, but free communication, through the medium of the assistants and nurses, was maintained with the erysipelas wards, no extraordinary precautions being taken to prevent contagion, although ordinary cleanliness was observed. I have also frequently seen patients with open wounds or ulcers exposed accidentally to contagion by being sent to the erysipelas pavilions by mistake, without their contracting the disease.

During a period of eighteen months there was no epidemic of erysipelas in the hospital, nearly all cases having developed in the city previous to their entrance into that institution. Caution, however, should be exercised, in spite of the facts mentioned, inasmuch as a considerable degree of contagiousness undoubtedly exists. This fact indicates the measures of prophylaxis. Strict cleanliness on the part of attendants, and in the care of surgical instruments which may be brought in contact with the case, with immediate and careful isolation of the affected, are to be strongly insisted upon. The caution necessary to prevent the transmission of contagion to the lying-in room is too obvious to require comment. As conditions of debility predispose to erysipelas, the systems of persons exposed to contagion should be maintained above par, if possible; particularly in prospective operative cases.

We now come to the general considerations governing the curative treatment of the disease.

In all cases, of whatever type, the asthenic character of the inflammation must be borne in mind, and should constitute the chief indication to be considered, our chief aim being to prevent or counteract exhaustion. This bears more especially upon the cellulo-cutaneous and cellular forms. The presence of any con-

[illegible] or chronic alcoholism, renders [illegible] the typhoid condition still more marked, and [illegible] accordingly. The danger of suppuration and sloughing, which perhaps may be followed by septic infection, with its train of attendant evils, must also be remembered.

The constitutional condition depends largely upon the extent and intensity of the local inflammation, thus enhancing the importance of local treatment, and the selection of such remedial applications as will give the greatest amount of relief.

In the treatment of simple cutaneous erysipelas in a healthy person, whose system is not debilitated by chronic alcoholism or privation, and who is free from any cachectic condition, and in whom there is no complication, but little is required save attention to hygiene and measures to allay local irritation and fever; these cases tending to recovery even without interference, although comparatively slight influences may render them serious.

It had been my practice to administer the tincture of the chloride of iron with chlorate of potassium in large doses, preceding it by a brisk saline cathartic, and using as a local application lead and opium in cold solution, with attention to tonic and supporting measures as required.

The usual hospital routine varied but little from this; and it is, I believe, the method of treatment resorted to by a great many practitioners. In a certain proportion of cases suppuration of greater or less extent ensued; and in view of the fact that the continuous application of cold to a tissue affected with a low type of inflammation still further lowers its vitality, thus favoring the formation of pus, I began the use of moist heat, continuously applied, covering the affected part with sheet lint, saturated with a solution of lead and opium as hot as could be borne, this being renewed as frequently as necessary to maintain an even degree of heat. I also combined salicylic acid with the iron, instead of the chlorate of potassium, with the idea of obtaining the antiseptic and antipyretic effect of the former drug, having in view the specific and constitutional character of the disease. The results were extremely gratifying, the hot applications rapidly reducing the swelling and tension of the part, with marked relief of the pain, which rendered them especially grateful to the

patient. By thus affording a greater amount of relief to the local irritation, much more marked reduction of the constitutional disturbance was noticed than had previously been obtained by the application of cold. The combination of the salicylic acid with the iron acted remarkably well, the duration of the cases being shortened, and the fever and tendency to asthenia diminished. Subsequently, in the *London Practitioner* for October, 1879, I observed a formula for the preparation of the salicylate of iron, published by Walls White, which I have found to be a still better preparation for the administration of the two drugs in combination. With some modifications, it is as follows:

℞. Ferri sulphat .....ʒi ℈ ii.
Sodii salicylat.....ʒii.
Sodii acetat.....ʒi ℈ i.
Glycerinæ .....ʒiv.
M. Sig. ℥ss dose.

Each ounce of this preparation is said to contain thirty grains of the salicylate of iron, the dose being found ʒii to ℥ss, which may be given every two to four hours, according to the exigencies of the case. I have found this preparation to be all that was claimed for it. It is less liable than the tincture of the chloride of iron to produce gastric irritation or constipation; it promotes diaphoresis, and has a decided effect upon the temperature and pulse. I have used the same drug after surgical operations to prevent septicæmia, in puerperal septicæmia, and in many febrile affections as a substitute for quinia, with marked benefit. The excessive doses of the tincture of the chloride of iron so often administered are, I think, injurious, causing disturbance of both the stomach and bowels; and, moreover, irrational, inasmuch as the absorption of such large quantities is hardly probable, on account of the irritation and functional disturbance of the gastric mucous membrane which is produced by them.

In cases of cutaneous erysipelas which are decidedly sthenic from the beginning, or in the severer forms of the disease under similar circumstances, the old-fashioned combination of calomel and opium, still clung to tenaciously by many surgeons, more especially in England, is undoubtedly advantageous, and it is my own custom to administer it for the first twenty-four or thirty-six

hours after the onset of the disease, in such instances. It seems to modify and shorten the course of the inflammation, limiting exudation, and the tendency to the formation of pus. We also obtain the anodyne effect of the opium. It should be used only in the sthenic cases, and then with caution, keeping in mind its depressant effect, and the danger of ptyalism. I ordinarily give about gr. j of the mercurial, with from gr. ½ to gr. j of opium every two or three hours.

In small children, the simple form of erysipelas is probably best treated by painting the affected parts with tr. benzoin co. or liq. ferri persulph., and then swathing them in cotton wool, with the adminstration of good food and small doses of quinine and iron. I have seen a number of such cases of simple cutaneous erysipelas in young children confined in a hospital ward, apparently as the result of damp. The ward was one used for convalescent paupers, and as a nursery. For some time, occasional outbreaks of cutaneous erysipelas in the children, and of acute articular rheumatism among the women, had occurred, and upon investigation, these had been found to be coincident with the occasional scrubbings which the floor of the ward received, it being imperfectly dried thereafter. As soon as this state of affairs was properly regulated, the erysipelas and rheumatism no longer occurred. The children recovered, with but one exception, although the erysipelatous blush covered over nearly the whole body in several instances. The case that proved fatal was one in which the navel had been neglected by the midwife, and in which gangrene of the abdominal walls occurred.

The application of the tincture of iodine, and the attempt at limitation of erysipelas by the use of nitrate of silver, are not only inefficacious in accomplishing the object sought, but appear to be unnecessary sources of irritation in the majority of instances. I have given them both a fair and extended trial. Cold applications of the muriated tincture of iron, of salicylic acid, or of the compound tincture of benzoin, are undoubtedly beneficial, but in no wise to be compared with moist heat, especially when it is combined with a sedative. Especial attention should be paid to these applications, for if they are allowed to become cold, they will prove injurious. Where they cannot be

faithfully and continuously applied, cold applications of some of the drugs mentioned will prove more reliable. It is sometimes well to combine a diaphoretic with the internal remedies. In cutaneous erysipelas of the face, the parts should be covered with a mask of sheet lint, dipped in the hot solution of lead and opium. The ordinary lead and opium lotion in use in the New York hospitals contains about ʒii of the acetate of lead, with ʒss of the tincture of opium to the pint of water. My own practice is to prepare a solution of about double this strength, thus increasing its anodyne and sedative effects. A saturated solution of the bicarbonate of soda, so highly extolled in the treatment of burns, is also an excellent local application.

Especial attention should be given to the condition of the eyelids, and if they are very tense and swollen, or appear boggy and infiltrated, with a great probability of suppuration or sloughing, free incisions ought to be made at once. These incisions should be made in the long diameter of the lid, and sufficiently free to allow the escape of the serous fluid with which they will be found to be infiltrated. Little or no scarring results, although the incisions may seem quite extensive, on account of the extreme swelling of the parts. It is better to make early incisions in this manner, even though the probability of sloughing be not very great, than to run any risk of its occurrence. Should sloughing supervene, great deformity and cicatricial contraction of the lids may result, and prove a serious calamity. The scalp should be very carefully watched, as suppuration and burrowing beneath it may occur very insidiously, resulting in troublesome sickness, if not in destruction of the pericranium and caries of the bones of the skull. Should any pocketing of pus be detected, free exit should be given to it at once.

There is often, in extensive facial erysipelas, severe conjunctivitis with profuse secretion. In such an event, the secretions should be carefully removed, and the inflammation allayed by frequent and prolonged syringing with warm water, containing about ʒii of the bicarbonate of soda to the pint. Erysipelas of the head, neck, and face, either singly or collectively, is quite liable to be accompanied by considerable cerebral disturbance, which calls for some modification of the treatment. These cases

inflammation of the cere-
occur independently of it,
of the symptoms. I
in a case of cellulitis of
of the orbit, symptoms which
meningitis, but in which, upon
if cerebral or meningeal inflam-
involving the neck, disturb-
the brain has been given as an
the same symptoms, and in a
case of erysipelas limited to the
the veins returning the blood
marked evidences of cerebral con-
tenable. I think that there
the cerebral substance by
rise to its profound func-
of inflammatory changes, or
a manner analogous to the action of
marked effects upon the func-
I have just described are
head of cutaneous erysip-
produced by the latter are
to be appropriately dis-

as is probable if the
saline cathartic should
applied. Internally,
and chloral hydrate
temperature be high,
resorted to. The cold
rather too radical a
and Lobbe advises
prove useful, but
of the low, asthe-
temperature should be con-
administration of opium, the
powder, contain-
sulphate of potassium.

Delirium is especially liable to occur if the patient has been addicted to the use of alcohol, and its treatment should be conducted upon essentially the same principles as in other cases. The cases which are due to extension of the inflammation to the cerebral structures, or to the condition simulating it, are to be treated as suggested for the cases of simple delirium, but with little hope of success, as they are almost invariably fatal. In addition to the ice-cap and other measures, leeches should be applied to the mastoid region. In the milder cases of delirium, this is hardly advisable, as there is some danger of the leech bites acting as new foci for the inflammation.

Erysipelas of the fauces may occur in erysipelas of the head and face, and may lead to œdema glottidis, or to the severer forms of inflammation and sloughing. The deeper seated varieties of erysipelas of the neck are especially liable to extension to the fauces, with resulting œdema of the glottis. Erysipelas of the fauces may, however, occur primarily, and remain circumscribed. In the treatment of this complication, the application of the nitrate of silver in the strength of forty grains to the ounce, if applied at the outset of the inflammation, will prove useful, and frequently abort it. Gargles of sulphurous acid in hot solution, with the same remedy internally, are useful. Small pieces of ice, instead of the hot gargle, may be given. Hot poultices should be applied to the neck. If convenient, steam inhalations will be excellent, and very grateful to the patient.

The effect of erysipelas upon chronic skin troubles may not be out of place if mentioned in connection with cutaneous erysipelas. I recall a case of the form of leprosy, known as elephantiasis Græcorum, in which cutaneous erysipelas supervened. It was pronounced "leprosy fever" by an enthusiastic dermatologist, who predicted a fresh eruption of tubercle. The case proved to be erysipelas, however, and was followed by a marked improvement. The acute inflammation evidently excited a new action, resulting in resolution and absorption of the infiltration to a certain extent. About as fortunate an accident as can occur in a chronic ulcer or eczema of the leg, is the supervention of erysipelas, provided the patient be in good condition, and the inflammation not too extensive. On the subsidence of the acute

symptoms, resolution of the indurated tissue about the ulcer, and rapid healing frequently ensue from the new action thus induced. As regards the relation of syphilis to erysipelas, I have seen some cases in which the inflammation seemed to determine the eruption as a result of general systemic disturbance, and again, have seen an eruption of syphilis fade with unusual rapidity upon the occurrence of erysipelas.

It is always well, however, in any case of erysipelas in which there is a syphilitic history, to administer a mercurial, especially during the healing of any ulcers or sinuses which may have resulted.

The cellulo-cutaneous or phlegmonous erysipelas is in all instances a serious affection, and both the constitutional and local measures are proportionately important. The marked tendency to asthenia, and the suppuration and sloughing that usually attend it, with the possibility of septic absorption and consequent toxæmia, are elements requiring the most careful consideration. In a short time after the onset of phlegmonous erysipelas, the affected part becomes of a deep scarlet or dusky red hue, and very tense and firm to the touch. There is a sense of extreme heat, with quite severe pain, and from the first, symptoms of exhaustion may be present. If not interfered with, suppuration and sloughing usually occur, and may result in serious destruction of tissue. These results are dependent upon several conditions, viz., depreciation of the vitality of the part as a direct result of the intense inflammation, and extreme tension from inflammatory infiltration with the ensuing great disturbance of the circulation. The attendant exhaustion is in most cases directly proportionate to the amount of local destruction, hence the great importance of limiting it as far as possible. The first indication being to relieve the tension of the inflamed tissue, free incisions into the affected part must be made at once. We thereby secure a certain amount of local depletion in addition, which is highly beneficial. Some authorities recommend a single long incision, but this may give rise to considerable shock and hæmorrhage, and but imperfectly accomplish the desired object. It is therefore better to make a large number of small incisions, varying from one to three inches in length, the number and situation

of which are to be regulated by the amount of tension present. The limb should now be fomented with hot carbolized or borated water until all hæmorrhage has ceased, and an "oakum poultice" applied. This consists in a thick layer of oakum or tow, saturated with water as hot as can be borne, and covered with a layer of oiled silk or muslin. The water should contain some antiseptic, and about ʒ ss. of the tincture of opium to the pint. These applications should be continued until resolution takes place, unless suppuration and sloughing occur in spite of prompt interference, when poultices of other kinds should be applied, to favor the separation of the sloughs. These may consist of the ordinary linseed meal, with the addition of laudanum, to increase the emollient effect, or if the sloughs and discharges be fetid, a poultice composed of equal parts of pulverized wood charcoal and linseed meal, mixed with brewer's yeast instead of water, should be used.

These disinfectant dressings lessen the liability to septic infection, and prevent fetor. All pocketing and collections of pus should be relieved by free incision. The importance of this cannot be over-estimated. The constitutional treatment is extremely important, and free stimulation should be the rule. Quinine should be given freely and preferably in small doses frequently repeated, a moderate degree of cinchonism being maintained. As a general rule, I administer about gr. ii. every two or three hours, unless gastric disturbance be thereby induced. The latter contingency is less liable to occur than when the drug is given in larger quantities, at longer intervals. The salicylate of iron should also be given in the doses before mentioned.

Milk punch is a useful form of stimulant and nourishment combined, and appears to be more acceptable to the stomach than egg-nog, which appears rather difficult of digestion. If obstinate vomiting occurs, the beef peptone will be found very serviceable, as it presents a greatly concentrated and readily assimilable form of nourishment. I prefer the preparation known as Gaunt's. This may be given in doses of a teaspoonful every hour, either in milk or a small quantity of water. If no gastric disturbance be present, the carbonate of ammonia and digitalis may be given, the character of the pulse being the criterion for its use. I

believe that this combination has a more markedly beneficial effect than would be accounted for by its action as a mere stimulant. When the stomach becomes absolutely intolerant of the various remedies, rectal alimentation and medication are, of course, necessary. The temperature, if excessive, should be controlled by the pack or cold sponging, as in the other forms of the disease. If the incisions be sufficiently numerous and free to relieve all tension, and are resorted to early in the disease, serious destruction of tissue rarely occurs, and consequently death from exhaustion is infrequent. Serious hæmorrhage is rare, it being usually readily controlled by styptics. In making the necessary incisions, care is to be taken not to allow the escape of a sufficient amount of blood to cause general depletion.

Cellulo-cutaneous and cellular erysipelas of the genital region are exceedingly dangerous, both from the especial tendency to asthenia, and the danger of extensive destruction of the parts involved, the cellular tissue in this situation being especially lax, and its vitality easily destroyed. The rapidity with which sloughing sometimes occurs, is astonishing, and I have seen the testes laid completely bare in a few days. In these cases, nothing but very radical measures are of any avail. A free crucial incision must be made for the whole extent of the swollen scrotum, with a sufficient number of smaller incisions upon both penis and scrotum, to relieve the tension. Hot antiseptic poultices should now be applied, and very free stimulation, with highly nourishing and concentrated diet resorted to. Large quantities of alcoholics, with the carbonate of ammonia and digitalis may be necessary. An ounce of brandy or whisky every hour may be beneficial in extreme cases. Although the destruction of tissue in some of these cases is very great, the amount and rapidity of repair is remarkable, as seen in the case I have cited, in which both testes were cleanly exposed, there being but a small ragged portion of integument left superiorly, but in which granulation and repair took place so perfectly that the organs were comfortably covered in, in the course of a few weeks. The scrotum was very greatly abbreviated, but no discomfort or pain were complained of by the patient.

There is little more to be said with especial reference to the cellular form of erysipelas, as the indications are essentially the same as in the severe cases of the other varieties. This type is marked by its still greater tendency to exhaustion, and the condition known as erysipelas typhoidea by some writers, and the more marked destruction of tissue, the inter-muscular areolar planes being often invaded, with the increased liability to septic absorption and resulting toxæmia. Especial care must consequently be taken, to permit the escape of pus and sloughs, with strict antisepsis, and an amount of stimulants regulated by the condition of the heart.

I wish incidentally to mention a peculiar affection, called by some superficial circumscribed gangrene, but which I think is really a form of erysipelas. This is usually met with upon the lower extremities, and in the few cases which have come under my observation, the disease began upon the dorsal or lateral surface of the foot, and extended upward upon the anterior surface of the leg. There is little pain or tumefaction of the part, which rapidly assumes a dusky, purplish-red hue, and soon becomes covered with large blebs, the surface beneath them being in some places like wash-leather or wet chamois skin. In a few days, the sloughing integument and cellular tissue separate and come away, and the tissues are laid bare down to the deep fascia and muscles. The affection is abruptly circumscribed, and does not seem to be connected with any special condition of constitutional depression. The treatment consists in tonics and hot poultices, and the cases result favorably if uncomplicated. Skin grafting is usually called for, when the ulcerations are in proper condition, thus preventing serious deformity from cicatricial contraction, which is apt to result. Some obscure local condition of enervation or vaso-motor disturbance may possibly be the prime factors in the pathology of these cases, but I think that they properly belong to the erysipelatous inflammations.

The special conditions existing in traumatic erysipelas require passing notice. They are an increased danger of septic infection, and in certain cases, the shock and anæmia resulting from the injury and its attendant hæmorrhage. Direct contagion is usually the source of these cases, and is rare, if antisepsis be

properly attended to. Strict attention to cleanliness about the wound, and the liberal use of antiseptics, are indicated, as there is a danger of toxæmia proportionate to the extent of surface involved and capable of absorption.

In conclusion, I will endeavor to give a comprehensive *résume* of the treatment of erysipelas as I have presented it.

In the treatment of erysipelas, in all its forms, we have to consider:

First. The constitutional condition which may have predisposed to the disease.

Second. The lesion which has acted as its exciting cause, if the inflammation be traumatic.

Third. The tendency to local destruction of tissue, and the formation and burrowing of pus.

Fourth. The tendency to the typhoid condition, proportionate to the severity of the disease.

Fifth. The danger of septic absorption and toxæmia.

Sixth. The danger of propagation by contagion.

Seventh. The liability to serious deformity from cicatricial contraction.

1. The first indication is to be met by measures tending to correct the cachexia present, if possible. 2. The second, by careful attention to the wound, and rigid antisepsis. 3. The tendency to local destruction of tissue is to be combated by free incisions adequate to relieve all tension, and the application of hot dressings to maintain the vitality of the part and promote absorption of inflammatory exudate, and also to relieve the pain. The possibility of pocketing and burrowing of pus should be prevented by immediate incision into all purulent collections. 4. The supervention of typhoid symptoms should be prevented, if possible, by proper analeptic and tonic measures, and the liberal use of stimulants. 5. The fifth indication calls for perfect cleanliness and prompt removal of dead tissues which might excite decomposition of the discharges and consequent septic absorption; with the adoption of antiseptic dressing. 6. Transmission of the disease should be prevented by strict isolation of the affected, cleanliness, both in regard to the seat of disease and the instruments used, and on the part of the attendants, with the

conscientious use of antiseptics. 7. Deformity may be prevented by careful management of the ulcers resulting from the disease, and the judicious use of skin grafting. Various mechanical contrivances may be necessary in certain situations, to prevent contraction.

137 *Madison St., Chicago, June* 22, 1882.

ARTICLE II.

ON THE CAUSES, AND BEST MEANS OF PREVENTING THE BOWEL AFFECTIONS OF YOUNG CHILDREN. By N. S. DAVIS, M.D., etc. Read to the Section on Diseases of Children at the Meeting of the American Medical Association, in St. Paul, June 8th, 1882; also, by request, to the Chicago Medical Society.

When it is remembered that one-third of the human race perish before they reach five years of age, and that a large percentage of these early deaths are the direct result of attacks of serous diarrhœa and cholera morbus, it will be conceded that no subject is more worthy of careful study than the pathology and prophylaxis of these affections. I mention these together because all measures designed to prevent disease must be intelligently adjusted either to the removal of the causes, or to a neutralization of their effects, or else they will fail to accomplish any useful purpose. Nearly all the public sanitary and hygienic measures of the present day are aimed at the removal or prevention of the causes of disease, both predisposing and exciting. But there are many influences which either predispose to or excite attacks of disease which are not under human control. The problem presented for consideration is not how to prevent or destroy them, but how best to shield the human system from their injurious effects. For instance, bad food may be destroyed and good substituted; bad air in dwellings may be changed by ventilation; soil, wet and filled with decomposable matter, may be drained and cultivated, but the meteorological conditions of the atmosphere, whether they relate to impurities, sudden and

extreme changes or waves of continuous high or low temperature are not amenable to our control, and yet much can be done to mitigate or prevent their injurious effects. Nearly all the recent writers on the diseases of children class the cases of serous diarrhœa and cholera morbus in children under two years of age, usually called summer complaint and cholera infantum, with local inflammations under the general name of catarrhal gastro-enteritis, and while they all assert that these forms of disease are most prevalent and fatal during the warmest months of summer, they set forth as the chief causes, improper feeding, impure and changed milk, impure air, the process of dentition or teething, and overworked, badly fed and unhealthy mothers.

These causes are represented to produce gastric or intestinal indigestion, or both, which so increase the irritation of the mucous membranes as to cause a more or less rapid serous exudation into some part of the intestinal canal.

Indigestion is thus represented as the immediate cause of the catarrhal irritation, while the indigestion itself is attributed to impure and confined air, unwholesome food, cutting teeth, and the influence of badly fed, overworked, and unhealthy mothers and nurses. The great difficulty in the way of assenting to the correctness of this view of the etiology of the diseases under consideration, is, that all the alleged causes exist in nearly equal ratio at all seasons of the year, and in all large cities, without regard to their topographical surroundings. For instance, there is generally no more attention paid to ventilation and pure air in the winter than in the summer; there are certainly on the average no larger number of infants cutting teeth in July and August than in December and January; the milk distributed in all our cities is quite as liable to be diluted and adulterated in the cold as in the warm season of the year. But if we turn to the mortuary statistics of all the Northern and Eastern cities we shall find the prevalence of serous diarrhœa or summer complaint and cholera morbus in young children, limited almost wholly to three months of each year. For instance, in this city (Chicago) in the reports of the Health Department for 1877, we find 8 deaths recorded from cholera infantum in April, 6 in May, 23 in June, 246 in July, 163 in August, 69 in September,

13 in October, and only 2 in all the remaining five months of the year. Substantially the same ratio for the different months will be found in the records of every year. Again, the diseases under consideration are not only limited to a certain part of each year, but they are also limited mostly to cities and densely populated districts so located that there is a wide range of temperature between winter and summer, as well as protracted periods of continuous high temperature during the latter season. In Boston, New York, and Chicago the range of the mercury from the coldest days of winter to the warmest of summer is generally equal to 38° C. (100.5° F.), while in New Orleans and San Francisco it is less than half that number of degrees, and the nights are almost always cool. And from a comparison of the mortality statistics of all these cities, we find only *five* deaths from cholera infantum for every 10,000 of the inhabitants in San Francisco, and seven in New Orleans, while in Boston, New York and Chicago the ratio varies from twenty-five to thirty deaths for every ten thousand of their inhabitants. I have found no evidence that the milk distributed in San Francisco and New Orleans was better than that furnished in Boston and Chicago; neither is there any proof that the nurses and nursing mothers of the two first named cities are more free from mental and physical infirmities than those of the two last. And yet the ratio of deaths from cholera infantum is five times greater in the latter than in the former.

There must, therefore, be some efficient cause or causes for the prevalence of the disease not common to all large cities, nor active at all seasons of the year. For twenty-five years I have noted carefully, and part of the time made written memoranda, concerning the prevalence of the serous diarrhœa and cholera morbus in connection with the coincident meteorological conditions of the atmosphere.

For three years parallel records were kept by active general practitioners in Cairo, Davenport and Omaha. The detailed results of these observations and records were communicated to the Section on Practice of Medicine, etc., and may be found in the volumes of Transactions for 1875–77–79. They are sufficient to establish the following propositions:

[illegible] of the affections under considera-
[illegible] July. August and September, com-
[illegible] wave of high atmospheric heat that con-
[illegible] for more than five days, which in the lati-
[illegible] sometimes the last week of June, but more
[illegible] week in July, and continues more or less
[illegible] succeeding ninety days.

[illegible] while the deaths from these affections in any
[illegible] community will be nearly the same in the two first
[illegible] begin in July and August, the date of the
[illegible] or beginning of the disease in three-fourths of
[illegible] will be in July, very few originating after the first
[illegible] Many cases commencing in July continue until the
[illegible] or September, causing wasting and death.

[illegible] it is not simply high or extreme heat of tempo-
[illegible] such as that of a single day or any number of
[illegible] nights, which favors the development of the dis-
[illegible] continuous high temperature day and night for several
[illegible] in addition to the heat, the air be stagnant from
[illegible] or obstructions, as in large cities, or from defective
[illegible] the effect is greatly increased. This explains why
[illegible] are more numerous and fatal in cities than in
[illegible] and why they prevail so little in even large cities
[illegible] warm climates provided the location be such as to
[illegible] at night.

[illegible] while the great majority of attacks which
[illegible] given summer are found to have their beginning in
[illegible] during the first thirty or forty days after the first wave
[illegible] temperature for the season, they are not
[illegible] the close of the month. Having thus
[illegible] mortality caused by this
[illegible] this combination of cir-
[illegible] body. We have the phys-
[illegible] temperature of the air the rarer it
[illegible] in a cubic inch. A
[illegible] air at a high temperature
[illegible] at a lower temperature. Stag-
[illegible] than moving, and the

physical law of expansion by increase of heat applies to the living as well as to dead matter, consequently high heat acting on the living body tends to increase the distance of the atoms from each other, and thereby lessens the force of vital affinity, while it increases the excitability or susceptibility to impression. The capacity of the blood for taking up oxygen or holding it in suspension depends much upon the proportion of saline elements it contains, and under a continuous high temperature the increase of cutaneous exhalation rapidly diminishes the free salts of the blood and lessens the capacity to receive the oxygen from the air cells of the lungs in exchange for its carbonic acid gas. Colitis and recto-colitis, or dysentery seldom occur until late in the season, when warm days are followed by cool nights and frequent changes from wet to cold occur; and even the indigestion which has been so generally suggested as a cause of summer complaint is itself the result of the impairment of natural gastric and intestinal secretions, and the increase of mere serous exudation—the primary fault not being so much in the quality of food as in the morbidly sensitive and relaxed condition of the whole inner surface of the digestive canal. The children are affected more than older persons because of the less mature development and greater sensitiveness of their gastric and intestinal mucous membranes and glandular structures, and their much more constant confinement indoors.

If this is correct, it indicates clearly that our efforts to lessen infant mortality from these diseases must embrace such measures as will secure for young children a better supply of fresh, pure air, for increasing the oxygenation and discarbonization of the blood and maintaining the activity of the vaso-motor nervous system; and as will counteract the effects of high temperature by increasing the general tonicity and lessening the excitability of the tissues generally. Measures for the first object must consist in securing better ventilation of dwellings, and especially nurseries and sleeping rooms during the warmest part of the summer, the sending of young children with their mothers and nurses from densely populated districts to moderately elevated healthy locations, or to floating hospitals, or receiving ships on large bodies of water during the special period of high heat. For

... taking the second purge, I know of no measures that ... at the same time within the reach of the ... as the judicious use of the sponge ... human system is relaxed and rendered ... continuous high heat, causing the infant ... and sometimes pale, a free bathing or ... with water simply as cool as is ... may produce a refreshing and invigorating influ- ... from six to twelve hours. Consequently, ... could be so instructed by their family ... every wave or period of high atmospheric ... the mercury did not fall below 70° during ... under two years of age should be regularly ... with in the evening as well as in the morning, ... rooms as well ventilated as possible; such a ... the attacks of serous diarrhœa and chol- ... and consequently very greatly lessen the ... from these affections. In the most oppressive ... bandage may be left around the trunk of the ...

... every careful observer that a large majority ... of this form of disease show their first begin- ... in the night or early in the morning, ... continuance of the high temperature, coupled ... and confined air of the night. The increased ... produced by the stimulant and ... bath on the function of ... in the evening, would enable thou- ... to pass the whole night ... sickness would begin. ... to the causes and nature ... and cholera infantum ... rational and successful ... treatment of those affec- ...

ARTICLE III.

VALEDICTORY ADDRESS TO THE GRADUATING CLASS OF THE WOMEN'S MEDICAL COLLEGE OF CHICAGO, March, 1881. By I. N. DANFORTH, A.M., M.D.; Professor of Pathology and Renal Diseases in the Woman's College; and of Clinical Medicine in the Chicago Medical College.

LADIES OF THE GRADUATING CLASS: You have each of you now received the degree which you have so long coveted, and for which you have toiled so long and well. For each one of you the past three years have been years of unremitting labor—and for some, perhaps all, of you—they have been years of self-denial as well.

With the rising of to-morrow's sun will come this question: "What next?"—and it is a question so vastly important in its relations to your future lives, that you cannot yet grasp its full meaning.

But it is not by any means a question which interests you alone; it is of hardly less importance to these friends who have favored us by their presence this evening, and in fact it is a question which has a practical interest for every community of our land. Regarded in its broader aspect, the question "what next?" means, not what *you* will do to-morrow or next year; not what shall be the measure of *your* success or the depth of *your* failure; not so much what shall be the outcome of *your* lives, but what shall be the future of woman in the profession of medicine; and it is your proud privilege to be ranked among those to whom the settlement of this question is committed. Without attempting to answer, or indeed to exhaustively discuss the subject this evening, I desire to lay down a few propositions, which I would have you accept as a sort of basis upon which to build your future professional lives.

And, first, I would have you go forward in full realization of the consciousness that you have a perfect *right* to study and practice medicine; that you have not entered upon a life of medical practice because the privilege so to do has been *granted* you, but

because you have an inherent and inalienable *right* to that effect. The male portion of the community has no exclusive jurisdiction over the profession of medicine, or the profession of law or of theology, hence they can grant to you no privilege to practice or to preach. The right of woman to earn her daily bread and achieve honorable fame in any and every honorable vocation, comes from God, and cannot be monopolized by man. I say it cannot be monopolized by *man.*

I am aware that the savage tribes enslave their women and make them beasts of burden, but a savage is not a man, as regards his relations to citizenship or civilization. I am also aware that here and there, in civilized countries, and, incredible as it may seem, even in our own republic, we come across an unclassified animal whom, until his place in zoölogy is definitely fixed, we are compelled to call a man, who denies that woman has any *rights* outside of rocking the cradle and mending the stockings. But these apparent exceptions to the fact which I have formulated, rather serve to strengthen than weaken my position, and in practice they benefit, rather than injure woman, in that they unify your sex, and thus vastly increase your strength, and in that they lead every true man to heartily and cheerfully recognize the fact that woman is endowed with inalienable rights, and not merely with privileges which can be granted and revoked at will. Therefore, I say to you, ladies of the graduating class, enter any community you please, and engage in the practice of your profession, because it is your *right.*

In the second place, I present this proposition for your acceptance: that your practice cannot be environed by sex or age. It is very common for us to hear something like this: That it is all very well for women to practice among their own sex and to doctor the babies, but that they can never engage in general practice. But to my mind, nothing is more certain than this: that women *must* engage in general practice, or they will not practice at all, either acceptably or permanently. It is absurd, as well as impossible, to build an impassible wall between the sexes, which is based upon any profession. If a woman practice law, she must practice *all* law; if a woman preach the Gospel, she must preach it to all; if a woman practice medicine, she must minis-

ter to the wants of *all*. The family physician must attend to all the ordinary medical wants of that family, or else there must and will be a change of doctors in that family. And this is not theory merely; experience, in a limited sense, has already demonstrated my position.

Of course, cases will arise, as cases *now arise*, in which the aid of "specialists" or those specially trained in certain departments of practice will be called, but the *fact* will remain that the family physician, be he man, or be she woman, will be the family physician still. And then we shall all wonder that we ever doubted it. Who does not remember the cynical critics who used to frown upon the woman who dared to speak in public? but at the present time women are recognized not only as acceptable, but most effective and useful public speakers.

In the next place, I would have you enter practice with the idea that your services are worth just as much as though you were men. It is a blot upon our civilization, and an offense to our sense of justice and equity, that we attach less pecuniary value to the services of women than of men. Services of all kinds should be paid for according to their real value, not according to sex of the person who happens to render them. Nevertheless, as a general rule, women are paid less than men for the same service. Female clerks, female teachers, female copyists, female telegraph operators are paid less than males in like capacity, and if you extend your range of observation, you will find the same fact true. Indeed, I have heard of one man in this city who asked for a reduction on a doctor's bill, because the doctor who rendered the service was a woman. But such moral malformations do not often arise.

Now, ladies, I would have you enter practice with the full assurance that the value of your services does not depend on your sex, but upon your skill, and remember this: that no one will be likely to value your services higher than you value them yourselves. Not that I would have you become extortioners in the slightest degree, but I would have you thoroughly imbued with a reasonable self-respect, and this is the surest warrant for the outgrowth of a wise and tender pity for suffering humanity.

Again, you must expect to assume all the responsibilities incident to the practice of medicine. Responsibility in medical practice knows no sex; it sits with equal weight upon all—and this is right. Your own clients, as well as the general public, the medical profession and the press, both secular and professional, will hold you to precisely the same accountability as they hold all other physicians. Community holds all physicians to a very strict account, and community is very sensitive on this point. I am glad that it is so. It adds dignity and honor to our profession; it ennobles our calling in the eyes of community, and thus, of course, ennobles us. And the people will soon come to regard you as physicians; not as women merely—precisely as they regard *us* as physicians—and not as men merely.

So, too, the law will hold you to the same measure of legal accountability as I am held, and for exactly the same reason. A suit for malpractice will mean the same for you as it means for me, and the judge on the bench will charge the jury that your legal liabilites are neither more nor less because you are women.

Finally, you are to take your places in the ranks of medicine as *physicians*, *not* as women; as exponents of medical science, not as the representatives of sex.

And now, ladies of the graduating class, what does the future promise? You have completed the studies required by our college; you have passed our examinations, most creditably to yourselves; you have received from us the parchment certificate, constituting you physicians, so far as it is in our power to make you such; and now what does the future promise? I answer, success. More than this, I guarantee you success. But you ask "When?" I answer, as soon as you merit it, and if you never merit success, you will, of course, never reach it.

Nevertheless, I expect, and my colleagues now here present expect, success from each one of you. Not that we expect a whole community to send for you to-morrow, or next week, or next year, but we expect you to conquer success by patient, persevering effort; we expect you to be diligent students, good thinkers and patient waiters. Every young physician has to fairly tire a community out by patient waiting. You will sometimes hear of

the wonderful success and the princely income of some pushing young physician who "rode" himself into practice by fast driving, and by other misleading exploits, such as employing someone to call him from church or some other public assembly, all of which were designed to convince the public that he was flooded with business. Such stories one almost always find pure fictions, utterly without a basis of truth. But whenever temporary success has been achieved by such dishonorable means, it has cost more than it was worth, and the ultimate result has been a legacy of unpaid bills and the well deserved reputation of being sadly deficient in common sense.

Let those who would follow in the footsteps of Mr. Bob Sawyer and Mr. Ben Allen in this particular characteristic, remember that Dickens was always conspicuously successful in the creation of his fools, and never more so than when his magic wand caused these graceless wanderers to posture before him.

The winter has come and gone; lectures are no more; the college building is closed; the lecture rooms are desolate; never again shall *we—this* class and *this* faculty—gather in the old familiar places. To-morrow you will glide away, as fast as steam can hurry you, to your respective homes, there to receive the well-earned plaudits and affectionate greetings from your friends and relatives. A few days hence, when the visits are all made and the congratulations are all in and you have rested from your winter's work, time will begin to hang heavily, the reaction will come and the stern, hard, cold question, "what next?" will be upon you, in all its inexorable reality. Do not spend one hour in doubting or hesitating; move forward to your place in the world; commence life in earnest; assume at once and gladly the grave responsibilities for which you have prepared yourselves. Show that you have confidence in yourselves; it is the first—and possibly the most important—step toward a successful professional life. Welcome the coming spring, so soon to burst upon us, with smiling faces, and hearts full of gratitude, that the world recognizes you among its youthful workers, and then go bravely and patiently to occupy and adorn your appointed place.

It only remains for me to assure you, ladies of the graduating class, that the faculty will rejoice in your future growth and will

watch your professional developments and unfoldings, with all the interest which a tender Alma Mater ought to feel in her growing daughters; and, on behalf of my colleagues, as well as myself, to pronounce the word which you have so ardently longed to hear, and yet which at this moment we all utter with sadness—Farewell.

ARTICLE IV.

DEATH FROM THIRTY GRAINS OF DOVER'S POWDER.

The following case is reported by Dr. S. Bailey, of Mt. Ayr, Iowa, and occurred in the practice of a neighboring physician.

The patient was Mrs. G. W.; forty-two years old; white; born in Eastern Illinois; has lived here four years. Was a housewife; married; has had five or six children, the youngest three months old. Was a woman of strong constitution; general health good; no hereditary predisposition; never had any serious illness or injury. Habits of life regular; hygienic surroundings good. Since the birth of her youngest child, had been quite unwell; has never ceased "to flow," and has had at times very severe pains; to use the family's own words, "her pains were just the same as if she was in labor." These would occur frequently. At times she would be morose and gloomy; ordinarily she was gay and happy.

On March 31, patient complained of having a cold and cough, and could not rest. Her physician was called, and found patient about as described, and prescribed five powders, each containing five grains powdered muriate of ammonia, and ten grains Dover's powder, two of which she took Friday night. She slept most of the night, and the next morning still felt quite drowsy, but was roused by her nurse to eat some breakfast, sitting up in bed; went to sleep again, and slept till ten o'clock A. M., when her nurse roused her, and gave her another powder. The patient went to sleep soon; in fact, right away, and slept till twelve M., when her nurse again roused her. This required some effort, as she was quite sleepy and dull, but was roused sufficiently to

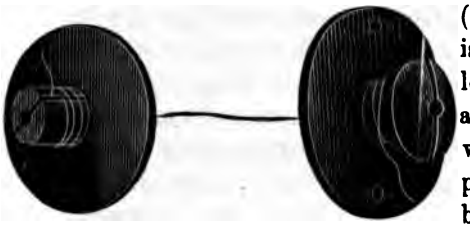
allow her babe to nurse. She again went to sleep, and remained so till between three and four o'clock P. M., when the family tried to rouse her and could not succeed, when another physician was called, who pronounced her narcotized from opium. The usual remedies were resorted to, such as active movement, rubbing, and strong coffee, without producing any effect whatever. At nine P. M. I was called; at that time her pulse was 118 and strong; respiration about twenty-five per minute, and stertorous; the face was livid, lips blue, and extremities cold; skin moist and cool; pupils contracted, and the eyes flexed or turned to the right the greater part of the time; also turned up. I applied a battery, and kept it up till 3:30 next morning, the 2d. During the interval from nine till twelve her condition remained unchanged, except the respiration became more hurried, increasing from twenty to fifty or sixty per minute, till she died, which took place at five o'clock A. M. the 2d of April. At 2:30 I administered a hypodermic injection of three drops of acetous tr. nux vomica. Spasmodic action of the muscles of arms and legs, the peculiar effect of nux vomica, was produced. This did not change the circulation, and did not seem to produce any general effect except to increase the already hurried respirations.

ARTICLE V.

DR. H. H. CLARK'S NEW SUTURE BUTTON.

The small number of appliances adapted to a great many operations, together with the wide range of utility and easy application of this button, is my excuse for calling the attention of the profession to that which supplies a long felt, yet so far unsupplied want, to wit, a simple yet reliable suture, entirely under the control of the surgeon at any and all stages of the treatment of a wound regardless of conditions. Made of vulcanite, highly polished, they are easily cleaned, antiseptic, light, compact and so strong that they are practically indestructible.

The accompanying cut represents but one of a number of forms, but embodies the principle common to all, the securing of the ends of the suture. As will be readily seen, it is a flat disk



(in other forms the disk is oval of any desired length and width) with an upright stem or shank, with a central round slot passing from center of bottom of disk to top of the stem, which is also saw slotted down to the top of the disk.

The round disks are made in five different sizes. Flax, silk or wire can be used for suture, but I prefer wire especially in large wounds.

There is also a slot at each edge of the disk opposite each end of the saw slot. These are intended for the passage of sutures, the ends of which are secured in the saw slot. The disks being one inch across, three sutures can be used with one button leaving the sutures half an inch apart, by using an oval button or a number of small round ones, any desired number of sutures can be obtained. The sutures can be entered as far away from the edges of the wound, and passed as deeply into the tissues as may be deemed necessary to secure a firm and continuous hold for an unlimited period of time. A single line of buttons immediately over the wound or a row at each side and then laced across will secure the most perfect coaptation. When placed directly over the wound, the flat surface of the button causes a very perfect approximation of integument, securing as small and as perfect a cicatrix as it is possible for art to obtain. In using them on each side, pressure may be applied and while doing so a collodion coating given immediately over the wound then cross-binders applied, and over all a simple antiseptic gauze. By this means perfect inspection of the wound is obtained with very little trouble, and the parts are so secure that they may be freely handled without danger of disturbing the most delicate adhesions.

Their use as tractors to draw together muscles divided in their transverse is readily apparent. Every practical surgeon has seen the swelling so great that the sutures have rapidly cut or ulcerated their way out, or he has been obliged to cut them in order to relieve the great tension of the parts, thereby losing their benefit at the moment when most needed, namely, when the in-

flammation subsides. His adhesive strap failing to give requisite support the newly formed delicate adhesions give way leaving a gaping wound to fill and close by granulation. All this can be avoided by using sufficient length of suture and wrapping the surplus around the stems, and using as may be indicated either slacking or tightening the suture. In amputations, by starting it one to two inches on the open surface and bringing out through the integument at from three to four inches from the cut edge of the integument, upon closing the sutures the muscular structure will be forced or rolled in over the end of the bone, closing every part so strongly that very little of any cavity is left. The sutures can be put in and the wound left open any desired time and so permit all oozing to cease and the surface to glaze and so lessen the chances of the accumulation of fluids into any unavoidable pocket. The benefits from adhesive plaster may be had by using strips with button holes in it as tractors, to connect the rows of buttons, slipping the holes over their shanks.

In case of formation of pus or the occurrence of secondary hemorrhage requiring opening up the stump, they can be loosened up, the wound washed out, or, if need be, drawn out of the way and after accomplishing the purpose of the surgeon again closed.

In cases attended with sloughing of the lips of the wound, they will, if passed in deeply and broad of the wound, still keep their hold and so save the approximation and hasten repair. In ovariotomy operations on the female perineum and in plastic surgery generally, a wide field for their use presents. I respectfully submit them to the judgment of the many honest men composing the ranks of medicine and surgery, and dedicate them to their use for the benefit of suffering humanity.

ARTICLE VI.

GASTRIC DYSPEPSIA. By WILLIAM HENRY, M.D., Harmon Lee Co., Ill.

Perhaps no organ or set of organs have as little said about them in medical literature, as those of the alimentary canal from the mouth to the anus.

In the past twelve years I have been called upon to treat diseases of the stomach more than any other part of the human system.

They are developed with various symptoms. One patient says, my stomach aches; again, my stomach is sour or bitter. They complain that their food does not digest, or it will not "lie on the stomach;" or it feels "like a weight in the stomach;" or, the stomach is always "bloated;" "hot wind comes from the stomach;" it "burns in the throat." "I feel something moving in my stomach," says another; "I believe there is something alive in it;" "I have such a beating in my stomach," to use an everyday expression. Says another, "my stomach feels raw, as though there were sores in it." "My stomach is cold," says another. "My stomach is constantly sick," says another, "after my meals; food distresses me so much, I am in constant misery." In this way I might enumerate the various symptoms by the way they express their feelings.

As it runs, two-thirds of the people have some trouble with the digestive apparatus. Some have constantly a bad taste in their mouth; their tongue is dry in the morning; they have a bad breath; the tongue is constantly coated; sometimes it is white, and again brown and red on the sides. I think that two-thirds of the diseases flesh is heir to come first and foremost from some derangement of the digestive apparatus.

Causes.—These may come from various sources. Overloading the stomach; giving it too much to do, is one cause. Not having meals at regular intervals; the drinking of too much tea and coffee; eating too fast; not well masticating the food; the use of narcotics, as tobacco; too violent exercise immediately after eating; the drinking of ice-water when one is very warm, giving a too sudden reaction; eating too many sweetmeats; the eating of ice-cream when one is very warm, producing a stasis in the circulation of the vessels of the stomach; the too free use of spirituous and malt liquors, causing congestion, thereby arresting digestion and assimilation.

Diagnosis.—We find as much error in diagnosis in these cases as any other; and I might say more. A case or two to illustrate my point: About one year ago, a Mrs. S., who had consulted other physicians before, came to me. She was told by them that she had uterine disease. I got the history of her symptoms. She said that she had constant distress in her stomach; so much

so that she could not rest at night. She said that she felt a faint sickness at times; the pain went through to her back. I diagnosed the case gastric dyspepsia. My treatment consisted in the use of anodynes to control the pain; I prescribed chloroform in from five to ten drop doses, to allay pain. To overcome constipation I gave her rhubarb every day for some time. For the gastric trouble I gave her charcoal and bismuth subnitrate, in doses varying from five to ten grains of the former to about the same of the latter, three times a day, before meals, combined in powder. In a short time all of the symptoms disappeared, and she pronounced herself a well woman.

Again, another error in diagnosis: a Mrs. B., whom I was called to see in consultation with another practitioner of about thirty years' experience. The woman seemed to be in a critical condition; she was lying covered with a cold perspiration; extremities cold; pulse about a hundred and forty, and to all appearances seemed to be in a dying condition from some terrible malady.

There seemed to be a tumor pulsating over the region of the stomach. My colleague pronounced it aneurism of the abdominal aorta. I could not agree with his diagnosis. I told him that I would call it gastritis with ulceration of the stomach, but as it was we could not agree. He then said that if I thought that I knew more about the case than he did, I might treat it. I gave aconite, combined with digitalis, to control the circulation. I then prescribed for her large doses of charcoal and subnitrate of bismuth, combined in powder. I gave water of slippery elm to drink, and a light diet. She was the subject of habitual constipation, for which I gave rhei tinct. combined with belladonna. I continued this treatment for some time. She improved: the pulsations ceased, the aneurism, so-called, disappeared. In about three months she was nearly a well woman, none of the symptoms again returning. I might enumerate more cases, but these, I think, are enough to illustrate my point.

Clinical Reports.

ARTICLE VII.

A CASE OF EPILEPTIFORM NEURALGIA. From the Records of the Clinic for Nervous Diseases, Rush Medical College, May 26, 1881. Reported by DR. EDWARD P. DAVIS.

The patient, Mr. L. S. B., æt. forty-three, resides in Scott county, Iowa, in a non-malarious and healthful region. His family history shows insanity, epilepsy and phthisis; no history of alcoholism. Patient appears well nourished, and exhibits more than ordinary intelligence. He has worked very steadily at the saddler's trade, but aside from his nervous diseases, he has had no serious illness. When twenty-one years old, he fell overcome when exposed to the sun. Three months afterward he had convulsions, which occurred at daytime once in two weeks or once a month for thirteen years. These were doubtless epileptiform. He then removed to a more quiet locality, and by exemption from excitement and the use of remedies, his epileptic fits gradually ceased, but the present neuralgia supervened about a year after the cessation of his fits. He has had but one or two convulsions since the neuralgia began. His first neuralgic pain was felt in the first molar of the right upper jaw; this pain returned every five minutes, and did not yield to quinine. The pain grew worse, extending around the face and into the eye; at first coming on only in winter, then in both winter and summer. At present the pain is paroxysmal; the face twitches about the lips; a burning sensation is felt, and great pain over the second division of the fifth nerve. The patient remains conscious, and presses with one hand on the occiput, while with a handkerchief in the other hand he rubs the right side of the face. This rubbing is

the result of experiment, while the occipital pressure is involuntary. Pupils are equal; the cornea clear; the conjunctivæ reddened. Pain often radiates over all the branches of the fifth pair; the malar bone is yielding to the patient's pressure. Sight is normal; the tongue is protruded well; smell is normal, but an annoying discharge of mucus persists from the right nostril. Taste, hearing and sensation are normal. Pressure over the supra-orbital foramen elicits slight pain. Pressure over the remaining foramina of exit of the fifth pair gives no pain, but a paroxysm may be elicited by pressure near the zygoma. The pain does not vary in intensity by day or night. Perspiration on the facial region is normal; a feeling of heat is present in the affected side. The patient has exhausted opium, gelsemium, quinine, iron; a combination of chloral hydrate and opium affords partial relief. In the failure of medication, an operation is advised, and on May 28, 1881, Dr. C. T. Parkes proceeded as follows:

Under antiseptic precautions, a curved incision was made over the malar bone, an entrance effected into the antrum of Highmore by a trephine; the rear wall of the antrum was perforated, the floor of the orbit was entered from the spheno-palatine fossa, where the infra-orbital nerve was reached, and followed to the foramen rotundum, where the second division of the fifth was found. An effort was made to stretch the nerve, when it broke, and the contents of the spheno-palatine fossa were removed, including Meckel's ganglion. The second division of the fifth was cut off at the foramen rotundum, and an anterior section was also made, which removed one and one-half inches in all. During the first night hæmorrhage from the nose and mouth occurred, but was not serious. Patient had pain radiating through the remainder of the fifth pair during the second day; twitching of the facial muscles also persisted a few days, but aside from these brief sufferings, and slight soreness about the wound, he described his relief as perfect. The wound healed by first intention, and in six days after the operation the patient went to his home.

Through correspondence, it was learned that his relief persisted until late in the past winter, when the pain recurred in the inferior dental nerve and about the eye. He was advised to visit the

city again, and presented himself for examination. An operation upon the inferior dental was recommended, and Prof. Gunn, at the surgical clinic, April 22, trephined through the ramus of the lower jaw, raised the nerve, and excised a quarter of an inch of its extent. The patient made a fair recovery from the operation, but was annoyed by very severe pains for about three weeks. Hypodermic injections of morphia and atropia relieved this pain, and as the wound healed he found relief without further medication. He is now free from pain, but notes uneasy sensations attendant upon cold and damp weather.

The peculiar origin and distribution of the trigeminus, its resemblance to a spinal nerve in the possession of a ganglion upon its posterior root, and its liability to disease, have rendered it an object of great interest to students in all departments of medicine. Recalling its origin, we find it to be from the outer portion of the floor of the fourth ventricle and from the continuation of the posterior horns of gray matter of the cord known as the tubercle of Rolando; the fibers of origin of the motor trunk are traced to the olivary bodies, to an origin common with fibers of the facial. Its sensory distribution will be remembered as embracing the face and fore part of the head, the eye, nose, ear and mouth. Without attempting to discuss the part played by the chorda tympani in the nerve supply of the anterior portion of the tongue, we may assign its innervation to the fifth pair (Quain). The motor distribution of the nerve in question is principally to the muscles of mastication.

In function, the fifth resembles a spinal nerve in the conveyance of both sensory and motor impulses. Its trophic fibers take origin in the Gasserian ganglion, and their function has been strikingly illustrated by the experiments of Samuels, Meissner and Schiff. Cases of disease of the fifth pair, and autopsies revealing alteration of the structure of the ganglion, furnish corroborative evidence of its trophic function. We have reason to believe that the fifth possesses recurrent fibers from clinical observation, the phenomena of the painful points of Varleix being of common occurrence. In view of the extensive distribution of this nerve upon a cutaneous surface exposed without protection to sudden changes of temperature, and its connection with the teeth, so

liable to disease, trifacial neuralgia is but a natural sequence of any predisposing malnutrition, inherited or acquired. Thus, Romberg states that it occurs only in advanced life, when the balance of waste and supply is in favor of the former. While the pathology of neuralgia presents much obscurity, we may adduce certain considerations which afford a reasonable, if not a proven explanation.

Healthy nervous action may be regarded as regularity of isomeric activity in the nerve trunk or ganglion in question, constituting the so-called normal tonic influence of the nervous system, this being independent of volition or peripheral impact. A natural analogy would be the condition of magnetism in any body. Any disturbance of molecular equilibrium will result in the interruption of this activity. Such continued disturbance we are accustomed to designate mal-nutrition. Long continued irregularities of nervous force lead to excessive or perverted activities, and the sensation of pain results. In the case described, this was carried to the extreme; the patient's paroxysms came on at varying intervals, but with great suddenness and severity. His natural impulse was to press with all his force over the affected nerves, and this pressure was the result of experiment, and was his only means of mitigating his sufferings, pressure evidently checking the activities of his nerves, as impact checks the vibrations of a sonorous body. Examination of excised neuralgic nerves gives varying results. Lesions found are those of altered nutrition.

The treatment of epileptiform neuralgia has embraced the full extent of anodyne medication, and has included surgical procedure as a last resort. Trousseau has used large doses of opium, finding great tolerance of the drug; while he does not claim to have cured a case, he has relieved many.

Bastian (*British Medical Journal*, June, 1879) cured a case of reflex epileptiform neuralgia by large doses of opium, twenty-five grs. per diem, diminishing the dose without the patient's knowledge. Remack reports a cure of tic doloreux by electricity, while Meyer accomplished this result by the same agent, making especial applications to the cervical sympathetic. Beard and Rockwell report failure after a brief trial in one case, while in

case of a man æt. sixty, temperate and of fine physique, eighteen applications of Faradaic electricity cured, the whole duration of the disease being two years. Three cases of severe trifacial neuralgia, not epileptiform, were improved, but not cured, by applications of Faradaic electricity. Hamilton cites a case where clonic spasms existed, the eyes being injected, flow of saliva excessive, gums tender, and points painful on pressure, where no relief was obtained except by large doses of alcohol. Nerve-stretching and resection have been brought forward as perhaps the only directly relieving agents known in these cases, and with results somewhat as follows: For the various neuralgiæ Wagner cites 135 cases, whose results show nine failures; six deaths; thirty-two relapses after several months; twenty relapses up to three years from operation; eighteen cases with no relapses for several months; twenty-three with no relapses after several years; twenty-six cases history after operation unknown. In "Select Topics of Modern Surgery," by Drs. Fenger and Lee, of Chicago, twelve cases are cited wherein stretching of the fifth pair resulted in nine recoveries; one failure; one partial relief; one relapse. An operation upon the infra-orbital nerve for neuralgia of the orbital branches of the fifth pair, by Dr. Bogue, of Chicago, resulted in six months relief, and a severe relapse. Nussbaum and Patonbau advocate the ligation of the carotid artery for general neuralgiæ of the fifth pair, while neurotomy is commended in localized affections; it has been observed that section of the inferior dental nerve is peculiarly successful when union does not occur.

The recent experiments of M. Weit (*Progrès Médicalè*, March 4, 1882) demonstrate the influence of nerve-stretching upon the centers themselves, tension of the pneumogastric having produced an injection of the medulla visible to the unaided eye. It will have been observed in the case described, that points painful upon pressure were not as abundant as in many cases. The absence of this irritation of the recurrent nerves would indicate a neuralgia of central origin; a point which the preceding epilepsy of the patient proves correct.

Foreign Correspondence.

ARTICLE VIII.

VIENNA, JUNE 3, 1882.

EDITORS MEDICAL JOURNAL AND EXAMINER:

The iodoform strife seems to have subsided; an occasional grumble is still heard—Czerny of Heidelberg being the latest to put in a mild protest against the general substitution of iodoform for carbolic acid in surgical dressings. The discussion will have one eminently beneficial result—not by any means the exclusion of the agent from a very prominent place in the surgeon's armament, but simply the inculcation of proper caution in its use. That iodoform is not perfectly innocuous, as was at first supposed, is now evident; but neither is carbolic acid; and the valuable properties of the one are as unquestionable as those of the other. At any rate the Vienna surgeons, from Billroth down, are calmly using iodoform as the general dressing, and show no disposition to "weaken" under the furious onslaughts of Kocher *et al.* One fact, however, seems to be generally admitted, that iodoform does not afford the same protection against erysipelas as carbolic acid; hence surgeons may be compelled to resort temporarily at least to the acid, especially in hospital practice.

Koch's tubercle bacilli are the object of general attention at present; they are unquestionably to be seen in every case of tuberculosis—if one has a homogeneous (oil) immersion lens, considerable experience in histological manipulation, and patience. Several methods have been already devised for bringing their detection in sputum within the reach of the practitioner, with the hope that the microscope may afford a definite diagnosis long before the physical changes are such as can be detected by the stethoscope. Ehrlich, Frerich's assistant in Berlin, has devised a plan

by which he says the bacilli can be seen through a good water immersion lens giving an amplification of 5-600 diameters. I have not yet used Ehrlich's methed, but I know by experience that Koch's is too exacting to possess much value for clinical purposes. Moreover it remains to be seen whether the bacilli can be detected in sputum with sufficient certainty to establish a diagnosis, before the usual symptoms and signs are present.

Neisser, in Breslau, who in 1879 published the discovery of a micrococcus which was to be found in every case of specific blenorrhœa either of urethra or of eye, but nowhere else, has recently recorded his conviction that this "gonococcus," as he christens it, is the specific agent in producing the disease; and quotes Aufrecht, Ehrlich and Gaffkey, the ophthalmologists Leber, Sattler and Hirschberg in support of his statements. But until recently the *experimentum crucis*—successful inoculation of the micrococci—had never been performed from the simple fact that animals are not susceptible to the gonorrhœal contagion, and human subjects have always preferred to acquire theirs in another way. Recently, however, Bokai, in Pesth, was so fortunate as to find six philanthropic students who placed their urethras at the disposal of science. With the "gonococci" which Bokai had cultivated artificially from gonorrhœal discharge, the six were inoculated; and three had the satisfaction of exhibiting a week later a classical gonorrhœa. For one somewhat familiar with the natural history of medical students, the experiment would have been far more convincing if the dauntless three had been kept in solitary confinement for a week before and after the inoculation. That these organisms are present in specific urethritis and conjunctivtis, and that they are not to be seen in pus from other sources, I have myself observed in numerous cases; but however great the probability as to the relation of cause and effect may be, the proof, as Neisser himself admits, is still lacking.

Still another bacterial disease has been the subject of recent experiment—this time on a large scale. Pasteur's assertion that animals can be protected by vaccination against splenic fever, which in Europe destroys immense numbers of cattle, has been recently subjected to a practical test by the Prussian government. Your readers may remember that a similar experiment was made

last fall by the Hungarian government, which placed at Pasteur's disposal several hundred sheep and cattle, half of which were vaccinated by Pasteur's assistant Thuillier, while the other half were left unprotected. About thirty days later all were inoculated with splenic fever bacillus which had been cultivated in Paris by Pasteur. The results were not entirely satisfactory: (1) Because several animals succumbed to the protective vaccination: (2) Because several others of the vaccinated died of intercurrent diseases during the vaccination period, while the non-vaccinated animals remained without exception healthy until finally inoculated. The government committee concluded from this fact that in consequence of the vaccination the ability of the animal to combat pathological influences was materially diminished: (3) Because several vaccinated animals yielded as rapidly to the poison as the unvaccinated. At the close, 14.5 per cent. of the vaccinated and 94 per cent. of the unvaccinated animals were dead. The committee reported advising, not simply that the government withhold its official sanction, but even that the vaccination by private individuals should be absolutely forbidden.

The results recently attained in Prussia are decidedly more favorable. With material cultivated in Paris, six cows and twenty five sheep were vaccinated by Pasteur's assistant, April 5th, and again Apr. 19—an equal number of animals being reserved for comparison. Three sheep died of splenic fever after the second vaccination; several others had slight fever. On May 6th all (twelve cows, forty seven sheep) were subcutaneously inoculated with the blood of a sheep which had died of splenic fever thirty hours previously—each sheep receiving one, each cow two and a half decigrammes of the blood. Three days later twenty-four sheep and three cows (all unvaccinated) were dead, the others sick; while all the vaccinated animals were perfectly well. Examination of several of the dead animals (by Virchow among others) proved the presence of the characteristic bacilli in the blood.

Pasteur ascribes the death of the three sheep after vaccination to a peculiarity of race and promises to send a "vaccin adapté" for such cases.

The decision of the government in the matter has not yet been made public.

W. T. BELFIELD.

Domestic Correspondence.

ARTICLE IX.

NEW YORK, June 19, 1882.

Editors CHICAGO MEDICAL JOURNAL AND EXAMINER:

Our societies have held their last meetings for the season, and many physicians are beginning to start on their summer pilgrimage. A large number go to neighboring seaside or country resorts. A custom is springing up of sending a card to the profession in the city, notifying the brethren that such a one will be at such a place and hotel for the summer months. Dr. A., for example, will be at Ocean Hotel, Long Beach, during July and August. This is a practice which has long been adopted in a measure by German physicians. There can certainly be no objection to it. If a physician acts openly and straightforwardly, it is a poor code of ethics which he will transgress. One of the evils of the classic precepts of the old code was that it led to so many sneaking and evasive acts. This was strikingly shown in that satire, also classic, known as the "Experiences of a Successful Practitioner."

The past winter records the formation of two new societies. One of them, the Materia Medica Society, has been already referred to. The last one is known as the Practitioners' Society of New York. It is limited in number, but contains many prominent men. The president is Prof. William M. Polk. Other members are Dr. G. F. Shrady, Dr. R. F. Weir, Drs. Sexton, Hunter, Ward, and others.

At the last two meetings the subject of the removal of nasopharyngeal tumors was discussed, Drs. Weir and Shrady each reporting a case. The points gained in the experience of these

operators were valuable. One was that preliminary tracheotomy is the safest measure, even if the tumor is small. In Dr. Shrady's case the tumor was very large, and the hæmorrhage terrific. It was thought by Dr. Shrady that ligature of the external carotid would be a wise preliminary measure in future cases. Dr. Weir was inclined to think that in many cases hæmorrhage could be controlled by dividing the operation into two stages: First, that of exposing the tumor, then, after a few days, of removing it.

Dr. Hunter read a very practical paper upon vaginal and uterine discharges. In leucorrhœa from vaginitis he considered very hot water, as a rule, the best remedial agent. He deprecated the use of astringents as often keeping up the discharge. In leucorrhœa from cervicitis, injections were almost useless. Local applications must be made. Of these he preferred pure carbolic acid. The discussion drifted off to the subject of leucorrhœa in children. The fact was brought out that a urethritis in young boys and possibly leucorrhœa in girls might be due to a uric acid diathesis.

At the last meeting of the Academy of Medicine, Dr. F. D. Lente described a "New Form of Knee-joint Disease." It is quite doubtful whether it merits such a title. The disease follows slight injuries or wrenching of the knee. The patient suffers great pain at times, and walks with difficulty. There is tenderness, especially on the inner side of the knee, but no redness or swelling. It is not a hysterical joint. A number of cases were cited, and the speaker asserted that it was from this trouble that Prince Leopold recently suffered, thereby delaying his marriage. Dr. Lente did not venture to give the pathology. It seemed evident, however, that he described a trouble due to a sub-acute or chronic inflammation of some of the internal structures of the joint, probably the internal semi-lunar cartilage. The condition has been observed by others. The treatment is rest, with a splint. This brings about a cure in a short time.

Dr. Knight, surgeon in charge of the Hospital for Ruptured and Crippled, read a paper the same evening on "Static Electricity." He was very enthusiastic over the results obtained by it, especially in joint troubles. Dr. A. D. Rockwell thought it

an excellent supplement to other forms of electricity. He referred to its tonic effects, and believed that when a patient was insolated and charged the electricity was diffused through the body. Dr. C. L. Dana had seen its tonic effects. He had had some speeially good results in local applications over the liver which had led him to inquire into its penetrating power. He believed that it was entirely superficial, and did not diffuse or penetrate except when sparks are drawn. Its effects, therefore, must be largely produced reflexly.

Dr. W. G. Morton said that he had found static electricity to be most powerful in all kinds of hysterical conditions, spinal irritation, etc.; next in rheumatic and painful joints, then in neuralgias, etc.

There has been considerable discussion here over Koch's alleged discovery of a bacillus tuberculosis. We want very much to have some sent over to us as has been done in England. I hear that an exhibition of them was given by some microscopical (not pathological) expert a short time ago. I have yet to meet anyone who puts faith in Koch's conclusions, though it seems impossible to deny the fact that he has found an organism. I have attempted at Satterthwaite's laboratory to demonstrate the bacillus. We had some beautiful specimens of tubercle. They were treated with methyl-blue and vesuvin, as described by Koch. No one at the laboratory, however, was able to distinguish them. We used a lower power (1-6) than is recommended by Koch. There are a number of obstacles which make it difficult to follow the Germans in their frequent epoch-making discoveries. It is generally found, for one thing, that they have been employing some new and unheard of dye which other people have to send long distances for, and then may not get it. By the time the rest of the profession is able to follow carefully the announced line of investigation, the original discoverer has achieved a reputation and perhaps got an official appointment. No better illustration can be found of the way in which a German pathologist can cover his tracks than in Erlich's recently announced method of showing bacilli tuberculosis. This remarkable man has a preciously new substance which he calls "anilin oil," in which, and in various other mixtures he baptizes the micrococci until they

are inflated to nearly twice the size modestly given by Koch. The discovery of patriogenic bacteria is getting reduced to a fine art in Germany. It is a pity we cannot find some here.

It is a peculiar fact that the pursuits of neurology and jurisprudence should so inevitably develop personal differences. It took the Medico-Legal Society three months to elect its present officers, and now a war-cloud still hangs over it. The president, Mr. Bell, works for it with great energy, but he is said to be too autocratic for an ideal officer. At its last meeting the subject of Guiteau was introduced and discussed. The occasion was the petitition to President Arthur for a stay of proceedings, in order to allow Guiteau to be examined by a commission of experts. This petition has been extensively circulated, but not, I imagine, extensively signed. There was not a unanimity in the society as to whether Guiteau is insane. But it was voted that the society make no official announcement of its views.

The last two meetings of the Neurological Society have not been exhibitions of brotherly love. At the May meeting for election of officers, the two candidates previously nominated, withdrew in favor of Dr. Spitzka, who had not been previously nominated. Dr. Spitzka was elected after the second ballot. At the June meeting, a protest was presented signed by thirty-five members, against the way in which the president's election was secured. I do not understand exactly wherein the enormity lay, but the protest was put on the minutes after some warm interchange of views. Doubtless the matter will drop now, being sufficiently small to drop with no great noise. It has been suggested that it would be well to embody a certain well-known dramatic poem as part of the by-laws in all medical societies. This poem is known as "the Society Upon the Stanislow," and its spirit may be gathered from the following verse:

> "Now I hold it is not decent for a scientific gent,
> To say another is an ass—at least to all intent;
> Nor should the individual who happens to be meant,
> Reply by heaving rocks at him to any great extent."

The resignation of most of the clinical professors in the University Medical School took place some time ago. It is undoubtedly a loss to the school, and one not easily made good, since most of the gentlemen occupied the first position in the special-

ties they taught. There is, however, no particularly bad feeling about it. The rumor is that we are to have a Post-Graduate School. There were some attempts to organize a new medical school in connection with Cornell University. It is doubtful if this succeeds, as Cornell is not in the happiest state, financially or otherwise, just now. If it were possible to organize a post-graduate course which would secure and utilize the vast amount of clinical material here it would surely succeed. For a very large number of medical men come here every year to "brush up." This they do at present in a haphazard way, which is unsatisfactory and unprofitable.

We have had a "First Aid to the Injured Society" at work here for some time. It aims to teach men and women certain essentials in anatomy and physiology, and also what to do in case of injury, accidents, drowning, fracture, etc. The course consists of five lessons. It has been rather the mode to attend them the past winter, and a number of full classes have been diligently lectured to. The majority of the pupils are women, and a good many of them young ladies. There is a little book furnished for guidance. This book is rather better than the course. If the fever for elementary physiology and nursing should attack Chicago, I would advise you to meet it conservatively. The amount of knowledge which can be made practically useful in five lessons is not great. Few certainly can attain the quickness of thought and readiness of action which characterized *Punch's* medical student.

"What would you do, sir," asks *Punch*, "if you were called to see a man who had hung himself?"

"I would cut him down."

"Then what would you do?"

"I would cut him up."

I see by the German journals that similar societies, known as Samaritan Societies, have been organized in Berlin and other places. They have not met with unanimous favor there.

We are still having plenty of contagious diseases in New York. Typhus fever appeared here last February, and it does not disappear. Ten or fifteen cases are reported every week. Small-pox is a little more prevalent than typhus. We have some twenty

new cases a week. I saw the report of the death by small-pox of a Boston actress not long ago. She had been opposed to vaccination. Such little memorials to Jenner's greatness are being furnished quite regularly. I saw a *mot* on the subject, which is too good to be kept in Paris—though it cannot be translated:

"Vérole et Variole," is the title; "Mlle. Duchand, de l' opera, etant morte de la petite vérole: 'C' est bien modeste,' dit Fontenelle."

ARTICLE X.

ELGIN, ILL., FEB. 10, 1882.

EDITORS MEDICAL JOURNAL AND EXAMINER:

In as brief a manner as possible, I will relate to you two railroad accidents occurring under my observation and treatment while in Indianola, Texas. It must be observed that in my surgical operations while there I had to depend on but little help, as help was not to be had. The first of these two cases was a Mr. J., twenty-one years of age, who, while in the act of coupling the cars together, met with the accident of having his right arm badly broken and lacerated, also one of his feet was injured, requiring the amputation of one toe. Three days after the accident his arm began rapidly to mortify, requiring amputation at the shoulder without further delay. I only had the assistance of a timid doctor, who begged me not to undertake the job, the patient begging me to save his life if possible. I chloroformed him and amputated at the shoulder joint, and saved his life. This accident occurred in December, 1878.

In the winter of 1879, on Christmas day, J. R., roadmaster, thirty years of age, while on his way to Victoria with the train, stopping at the first station, twelve miles out from Indianola, while in the act of stepping on the train as it was about to start, made a misstep, and one of the wheels passed over his foot, mashing and lacerating it badly. As the train was on its way to Victoria, he was taken on there, and I was at once telegraphed

to come up, distance fifty miles; a special car took me up. I found his injury such that I was sure an amputation was necessary, but the matter was delayed two days, and I then fixed up a swing bed on one of the cars and took him to Indianola, and the next day telegraphed to Dr. Sutherland, of Victoria, to come down and assist me in amputating his leg. Mortification had commenced, spreading over the foot, and was extending up the leg. The patient was made ready and Dr. S. administered the chloroform, and I at once amputated just below the knee. I noticed the cut muscles were quite dark-colored, and I feared a second amputation above the knee would be necessary, but I succeeded in healing up the stump, making a good one, but not by the first intention. I afterward took measurement of the stump, and sent to New York and succeeded in getting him a good fit of an artificial limb. H. ROZENCRANS, M.D.

ARTICLE XI.

TAMA CITY, Iowa, July 7, 1882.

EDITORS CHICAGO MEDICAL JOURNAL AND EXAMINER:

The following case, I think, will be interesting to the profession:

June 15, Mrs. B., æt. 28, called at my office and requested my aid in producing an abortion. I refused, and tried to dissuade her from such a course. She stated that she was "two months along, and if I would not assist her she would do it herself." June 19th a messenger called and stated Mrs. B. was dying.

When I arrived I found the lady in a terrible convulsion—her face fearfully swollen and black; eyes deeply injected and partly open, with the pupils widely and symmetrically dilated. The blood was flowing from her nose and mouth; fingers livid; and each muscle seemed to vie with another in producing the most horrible distortions of face, trunk and extremities. The pulse was rapid, 120, but firm; the surface moist and cool, and she wholly unconscious.

I administered chloroform (Squibbs') and she immediately passed into a semi-conscious state, shortly becoming quite communicative.

She remained in this condition about two hours, when she passed into another convulsion, in which she appeared about as before.

I applied the same means of treatment as before, and soon she was comparatively calm. Noticing the peculiar odor of the eructations, it brought to mind her call at the office. Believing that she had taken some of the many popular remedies to produce abortion, I gave her a hypodermic injection of apomorphia 1-12 grs., which soon produced copious emesis. From the vomited matter I easily obtained the peculiar odor of *oil of tansy*. She admitted taking "over a teaspoonful" of the oil.

Upon examination, I ascertained that she was flowing slightly, and just after I called (two hours later) she passed a two months' fœtus from the vagina. Copious injections of hot water and two drachms of Squibbs' ergot soon checked the flowing, and under the liberal use of stimulants and tonics she has made a rapid recovery.

I call attention to this case as it is the second I have treated here within three weeks, and she states that it is frequently used by the ladies of her acquaintance, she having known of several deaths from its use. Is there no way of preventing the sale of such dangerous drugs to the laity when it is well-known for what purpose they are purchased?

F. W. GODING, M.D.

It is announced that the French Minister of Marine has placed at the disposition of M. Alphonse Milne Edwards the vessel *Le Travailleur*, for a dredging expedition in the Bay of Biscay, as far as the Canary Islands. The operations, which are to be made with a view to studying the fauna and flora in deep sea, will take place in July and August next.—*British Medical Journal.*

Society Reports.

ARTICLE XII.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, July 3, 1882. Dr. J. H. Hollister, President, in the chair.

After reading of the minutes of the last meeting by Dr. Liston H. Montgomery, a motion was passed that hereafter honorary members of this society who desired becoming active members, would be so regarded, provided they were resident physicians and paid the annual dues.

Discussion on the causes of, and treatment for preventing the mortality in children, from serous diarrhœa and cholera infantum.

Dr. Fenn opened the discussion, which had been postponed at the last meeting, at which Dr. N. S. Davis had read a paper on this important subject. Dr. Fenn believed that there was no special noxious agent causing this disease; that, in his opinion, the same influences that affected adults affected children likewise. Everybody knew that heat was a great stimulant, which, unduly increased, was destructive in its effects. The susceptibilities of children were greater than those of adults, and under the steady influence of heat their vitality grew less. There were many trivial causes of diarrhœa in children. In our northern latitude, the labors of the day enable adults to rest well in the night, but children were often restless and could not sleep. Sometimes they lay uncovered, and while their side next to the bed was sweating, the one exposed to the air was chilled, and thus the taking of cold was a frequent cause of diarrhœa. Another cause was the constant hugging of children by their mothers. They were kept as if wrapped in a poultice; yet, the exhalations from adult bodies

were deleterious to infants. There was a necessity on the part of parents to change their children's clothes frequently, and bathe them in cold water. Fresh air, good food and pure water were indispensable in the treatment of the disease under consideration. Sometimes abstinence from all food except milk and lime-water was necessary. But he deprecated the use of powerful or debilitating medicines.

Dr. D. M. Tucker used calomel and soda in gastro-enteritis, with bismuth and syr. rhubarb whenever indicated. He advised removal of the child and mother to the country when practicable, for the city was a too fertile soil for the disease to feed on. He would give children no solid food until they had teeth to masticate it. The mother should nurse the infant by all means. Warm applications, 70 F., should be made to the abdomen, and if there was a catarrhal affection of the lungs, a frequent concomitant, that should be attended to.

Dr. Paoli said that catarrhal gastro-enteritis and cholera infantum were fatal diseases in all the great cities; that remedies would fail in spite of all ability on the part of physicians, even after the best hygienic precautions had been taken. But many physicians called cholera infantum a mere congestion of the bowels, and got the credit of a speedy cure. As to treatment, we had to individualize it and adapt it to the case as might be. There were gastritis, colitis and enteritis, each of which might assume various forms. There were the poor, who lived in the midst of hurtful surroundings, which could not be ameliorated, and where the mothers gave indigestible food to their children, in spite of the physician's advice. Then grave complications, as dysentery, sometimes set in. As a valuable remedy, he recommended small doses of nitrate of silver, 1–20 gr. every three hours.

Dr. S. Strausser said that a most frequent cause of the diarrhœa of children among German populations was prolonged lactation. In his opinion, a child eight months old should be weaned if there was a tendency to diarrhœa, and lactation should never be prolonged after the twelfth month. He had met several cases in which the cause of the disease was phymosis, and circumcision cured them. In all these cases, the closest attention

should be given in the diet. He enjoined perfect rest; abstinence from food in many cases; a flaxseed poultice with a little mustard to be applied to the belly, and a warm bath, in some cases. He gave bismuth subnitrate with the chalk mixture, and paregoric if indicated. In vomiting, he gave aromatic spirits of ammonia. He believed that under the treatment which he had mentioned the mortality would be reduced one-half. Infant feeding was worse than starvation. Milk with lime-water, and a few drops of whisky in ice-water, were good drinks in such cases.

In gastro-enteritis, Dr. J. H. Bates believed that the first symptoms were those of irritation of the nervous system, be the cause what it may, heat or indigestion. In such cases, care should be taken, when giving cows' milk, that it came from healthy cows. It was advisable to clothe the children in wool. Some cases of diarrhœa were malarial, recurred in periodical aggravations, and were best treated with quinine, a remedy which sometimes produced its effect on the infant through the milk, if administered to the nurse. But he did not believe in the efficiency of any medicine in particular.

Dr. Earle said that cholera infantum was the rarest of diseases. Although he met a great many cases of diseases of children, he seldom came across a case in the space of a year; but simple diarrhœa, entero-colitis and dysentery were quite common. The two first of these were often the result of bad diet. One of the remedies he prescribed the most was phosphate of sodium. He gave as much as would hold on a three cent piece at a dose. This was the salt found in human milk; in which it differed from that of any other animal. He did not advise weaning a child sick with diarrhœa. If extra food was required, he gave rice-water, with just enough cream to make it nutrient, and seasoned with sugar and salt. He withdrew milk in cases in which he found that it caused the disease, and did the same in regard to other diets, as the case might be. We had sometimes to avail ourselves of artificial foods. He had observed that comdensed milk was given in too small quantities. Children were starved on it. Some children never could satiate their appetite, and had never been allowed a good square meal. He gave one teaspoonful of condensed milk, with seven of rice-water, at a time.

For twenty-five years, Dr. J. H. Hollister had given the subject a good deal of thought. He believed that an atmospheric temperature of at least 70° F., continued for a few days, was required for that form of the disease known as summer complaint to settle in the community. He explained the occurrence thus: A prolonged high temperature caused paresis of the nervous ganglia, and through the action of the vaso-motor nerves, the vessels of the secretory organs were relaxed. Functional derangement of the liver arose, and chills took place. A serous discharge from the bowels was the inevitable result of congestion.

As to treatment, the temperature should be brought down, in acute cases, by cooling and bathing. He believed that calomel was a nervous stimulant, as the salts of zinc; that it acted on the ganglia of the nervous system, and relieved the congestion of the bowels. For twenty years he had relied on it in such cases. In diarrhœas, after inflammation had set in, the most favorable stage was passed, and these cases were often looked upon by mothers as results from dentition which should not be interfered with. In his practice, the doctor often tested the discharges with litmus paper, and then administered alkalies, if they were acid. He had used calomel, in the dose of $\frac{1}{4}$ to $\frac{1}{8}$ of a grain, as a nerve-stimulant, with good results. When there was excessive irritability of the mucous membrane, he gave the camphorated tr. of opium one to five drops; also the chalk mixture.

℞ Tr. opii camphor,
Mist. cretæ,
Sacchari. } .....āā ℥i.
Aquæ.....ad ℥ij.

M. Sig. teaspoonful every three hours for a child more than a year old.

He had been very well satisfied with this *positive* treatment, and had lost few cases. The most harmful circumstance was that mothers erroneously believed that teething diarrhœa should not be checked. In extreme prostration he gave a few drops of brandy.

Dr. Lester Curtis, after experimenting, had come to regard calomel as an efficient remedy in much smaller doses than usually

given. He divided ½ gr. of the remedy into twelve powders with sugar, and gave it every three hours. He had obtained beneficial results from as low as one-sixtieth of a grain.

The society adjourned.

PATHOLOGICAL SOCIETY.

At the meeting of the Pathological Society held June 26, after Dr. Lydston's paper on the treatment of erysipelas, an animated discussion followed. Dr. E. W. Lee recommended the use of alcoholics internally, and carbolic acid locally. In the cutaneous form, he gave one part of it to twenty of a mixture of gum tragacanth, acacia and molasses. He also recommended the local use of steamed compresses. Dr. Odelia Blinn recommended the external use of chloroform in rebellious cases.

Dr. D. R. Brower had obtained very beneficial results from the use of belladonna internally. It was established by Ringer and by Bartholow, and deserved a better trial than it had received yet.

H. D. V.

As a profession, doctors think it undignified to have much to do with politics. As a whole, they are not as big tax-payers as they ought to be, but numerically strong, intelligent and influential. Unfortunately, other of the better elements of society hold themselves aloof from mingling in what they term the filthy pool of politics. This condition ought not to be, if we want to break down bossism and machine politics, to defeat vicious and secure good legislation. 'Twould be a misfortune for all doctors to think alike, but if each will follow his convictions into the ranks of that political party nearest his liking, then exert his influence toward sending intelligent, representatative men to the legislature, we may secure the enactment of such laws as will protect the people, and convince them that we have been impelled by motives other than a desire to attain selfish ends.—*Dr. Crumpton*, in *Pacific Med. and Surg. Journal.*

Original Translations.

DEMOKEDES, OF KROTON.—(*Archiv für Gerschichte der Medicin.*)

At Knidos there lived an Æsculapian priest, with the name Kalliphon, who was very well educated in the art of medicine. To him was born a son, and he called him Demokedes. When the youth was growing in limbs the father tried to cultivate his brain, and taught him, beside classic matters, the highly esteemed art of medicine. When his son was grown up they removed to Kroton, as the river was named, and practiced their profession. But they could not agree, the father being a rather passionate man, but the son a very gentle youth. Therefore, Demokedes migrated to Ægina, where he surpassed even in the first year all his old colleagues. At this time (about 500 B. C.,) a physician had to do not only general practice, but had also to mix his medicaments, sew his bandages, and to manufacture all his instruments. Young Demokedes, notwithstanding that he had no appliances whatever, excelled by his practical ways in so marvelous a manner that he was appointed after the first year as city physician, with $1600 salary, the first appointment ever made of this kind.

After being three years at Ægina, his fame was so widespread that he was called as city physician to Athens, with a salary of $2600, but after a little while the famous Prince of Samos, Polycrates, made him a court physician, with $3200. Here he lived in a princely style as the highly esteemed friend of the Prince of Samos. But life is changeable. Orœtas, Persian Governor of Sardis, was a mortal enemy to Polycrates from unknown causes, and in a deceitful manner he invited the Prince

Polycrates to visit him, with all his court followers, at Magnesia, where the unlucky prince was captured and killed. Our Demokedes, who had accompanied the prince, was sent as a slave to Darius, King of Persia (485 B. C.). Here the unhappy Demokedes lay among other slaves, clad in rags, with chained hands and feet for a long time, but a happy accident raised him again to the highest honors. Darius, the mighty king, jumped one day from his haughty stallion (or was thrown off), and got a luxation of his ankle-joint. The Arabian physicians of the court were unable to reduce the luxation, and inflammation set in. When the king lay in great agony, and his physicians were unable to do anything, somebody told him of Demokedes. Clad in his rags the latter was brought before the king, and asked if he were a physician. "No;" said our Demokedes, who was afraid that he would never again see the borders of happy Hellas, but when he was threatened with torture he agreed to help the king. And so he did. The king, after being restored to full health, presented two chains of pure gold to Demokedes, which the latter refused, asking the king if he would chain him forever. Then the king sent him to the dames of his seraglio, and they filled a large bucket full with gold, so that the servant of Demokedes, who picked up the overflowing gold pieces, made quite a large fortune. He was then elected court physician, and lived again in a princely style as the most esteemed friend of the mighty King Darius. But he always longed to see his happy Hellas again.

Among his patients was Atossa, daughter of the King Cyrus, II, and wife of Darius. She had got a small sore on her breast, which she kept secret in false bashfulness as long as possible, until it developed to a regular mastitis. Then she called Demokedes, and he promised to cure her if she would do what he asked from her for his benefit and not to her own danger. So she said to Darius: "O mighty king, you are such a strong and powerful young man, and you have so many soldiers who have nothing to do but eat and drink; can you not go and make war upon the Greeks and bring me some of those beautiful Greek maid servants?" "That I will do," said Darius, and he ordered fifteen commanders of his army to go to Greece and look at their armies

and at their fortified cities. But Demokedes was elected as the leader. Two war vessels were equipped and a large ship laden with costly presents to the brothers of Demokedes was added. They sailed to Greece, and there Demokedes took his departure with the costly presents and bade the commanders good-bye. They tried to capture him, but the citizens of his native city Kroton defended him. Afterward he sent to the King Darius his card of marriage with the daughter of the celebrated Milo. At Kroton he started a medical school, and he was by far the most celebrated physician in Greece after Hipocrates, and to his college came all the young men from over the world, who would study the art of medicine.

THE ETIOLOGY OF TUBERCULOSIS.—(*Wien. Med. Chir. Centralbl.*)—Villemin was the first to discover the conferring of tuberculosis upon animals. The inoculation of tuberculous matter into animals has been tried by Cohnheim, Solomonson and Baumgarten, and Tappeiner proved the possibility of conferring the disease by inhalation. The statistical tables show that one-seventh part of all human beings die from tuberculosis, and if we take the lower classes alone, one-third are destroyed by this terrible disease. Koch, the medical counsellor of the German empire, has investigated the matter thoroughly. The experiments made on this subject had been hitherto without success, because the methods of dyeing the micro-organisms had not been satisfactory, and even Cohnheim, the first investigator, says in his recent book on general pathology, that the direct proof of tuberculous virus is a problem not yet solved. Dr. Koch has dyed the virus in the following manner: The objects to be examined are dried on the objective glasses. They are then put in a solution of 200 ctm. of distilled water, in which is dissolved one ctm. of concentrated solution of methylene blue. To this is added a 0.2 ctm. of a 10 per cent. solution of caustic potash. The glasses are kept there for twenty-four hours, and then they are put in a concentrated aqueous solution of vesuvine and cleaned with distilled water. By this process all the other tissues take on a brownish color, but the bacilli are stained blue. The bacilli thus prepared show a peculiar appearance. They have a rod-like

form, are very thin, and one-quarter of the diameter of red blood corpuscles long. On those points where the tuberculous process is in rapid progression, the bacilli will be found in densely packed groups and bunch-like aggregations. (In all the hospitals at Berlin the diagnosis of tubercles in difficult cases is now made in this manner by the microscope.)

ST. PETERSBURG.—Surgeon-General Busch, of the navy, has been sentenced to four years' banishment to Siberia and discharge from the navy for "selling offices." Happy Russia!

IMPOTENTIA VIRIS.—(*Gazetta Ukarska*).—A healthy man, twenty-four years of age, who practiced masturbation for a certain time, was sued by his wife for impotence, and she got a divorce. From this time on the man suffered from attacks of melancholia, but recovered and paid his addresses to another woman. A short time before the stipulated marriage he had the same attacks, and he became so affected that he tried to commit suicide. Dr. Janiszewski found the patient to be well developed with but a slight sensibility on the lower dorsal vertebræ. The prepuce of the penis had a low temperature. The doctor thought, in absence of any pathological symptoms, the case to be of a moral character, and treated the patient accordingly. He persuaded him to marry, but he forbade cohabitation for the first two weeks. At the same time he galvanized the patient, one electrode applied to the dorsal vertebræ, the other to the scrotum. Cold baths were administered to the lower part of the body and small doses of strychnine were given. After the time named the patient recovered.

SUDDEN DEATH IN PHTHISIS CAUSED BY ENTRANCE OF AIR INTO THE BLOOD VESSELS.—(*Berl. Klin. Wochenschr.*)—A patient twenty-two years old, of a phthisical family, showed indistinct respiration with dullness on the right lobe of the lung. The expectorated matter was greenish and feculent. After being three weeks in the hospital he suddenly collapsed and died without convulsions. The autopsy showed tubercles in the right lobe and a small cavity in the upper part of the same lobe. There

were three small cavities in the left lobe, two being filled with caseous matter, the third with blood and air. The heart was somewhat enlarged, and showed the left ventricle filled with blood and air, as was also the right .ventricle. All the main arteries contained blood with air bubbles. All the arteries and veins of the brain were filled with air. The air in the chest had broken into a branch of the pulmonary vein, and thus by the action of the left ventricle the air was forced into the whole system.

LA FRANCE MEDICALE says that the radical cure of hydrophobia as reported by Bonley and Dartigue, by means of *hypodermic injections of pilocarpine* is not so reliable as thought at first. Dr. Dartigue admits that he administered at the same time arsen. of strychnine, hyoscyamine and monobromate of camphor. It is difficult to distinguish the effects of this "mitraille" of medicaments.

HYSTERIA IN THE MALE.

It is now admitted by all practitioners, that hysteria is not exclusively the bane of women. Man may also, in some cases, present all the characteristic features of this disease: vomiting; epileptiform crises; paralysis; choreic movements; anorexia; nosomania (mimicry of diseases); necrophobia; all of which may appear in individuals of the male gender with the same intensity and the same intractability as in the female, or be relieved as promptly, under the same treatment.

While perusing the proofs of a concise treatise on Hydrotherapy (now being published), through the kindness of Mr. Pascal, we have been surprised by the number of adolescents who have applied to the Hydrotherapic Institute of Passy, to be cured of this disease. And what is remarkable, is that a number of these youthful patients came from the most distant and different countries. Whether Russians, English, French or Swiss, their symptoms were always identical. (In his work on hysteria major, Mr. Paul Richer made the same remark in regard to women.)

Here are, in a few words, some of the cases which will attract

practitioners' attention in the *Précis d'Hydrothérapie.* just referred to:

The first case is that of a young man from Nancy, emaciated, and affected from his infancy with marasmus. When presented to Prof. Charcot, he was suffering from vomiting and paraplegia, and placed under the care of a parent who allowed him everything that he wished. Brought to Passy, this case was treated by the water-cure; two douches a day; temperature 11° C. After a month, he had regained the power to walk, and he was put on gymnastics. A month later he began to learn fencing. Three months from the time of his admittance, he left the establishment entirely transformed, and as vigorous as the boys of his age.

Another boy from Nancy, æt. sixteen, came to Passy after trying all the ordinary means of cure. His parents had neglected nothing that was of a nature to relieve him. In despair of any success, they applied to Prof. Charcot, for whom a diagnosis was easy. His nervous crises and paraplegia could be nothing else but hysterical manifestations. This young patient was put under the care of a professor whose duty it was to give him intellectual work to do in the institute. While under treatment he had a relapse, following a five weeks' sojourn in his family. Patient afterward left the establishment cured.

Another case just as remarkable was that of a boy from Dunkerque, æt. eleven. In 1875 he had applied to Dr. Barthez, who, seeing the long standing of the disease, the number of physicians employed, and the variety of therapeutical means used, called Prof. Charcot in consultation. Both concurred in making a diagnosis of hysteria, and recommended rational hydrotherapy. In this case likewise, paraplegia was a predominating symptom. The leanness was extreme. There was anorexia in the way of alimentation. After a month's treatment, appetite had returned, and the youth could jump on one leg. After two months, he could walk naturally. After three months he left the institute, in spite of the doctor's advice to the contrary. Five months later there was a relapse. A new course of hydrotherapy cured the patient definitively.

Among other cases, Mr. Pascal cites that of a boy ten years old, from Dieppe, who was treated in Passy about the time of the preceding patients. Anorexia and paraplegia were again the main symptoms. The same treatment was used; two douches a day, temperature 11° C., filiform douche; later, gymnastics; during the whole treatment, a severe discipline. Same success; that is, a cure in two months.

A boy twelve years of age, from Paris, was another instance. He was an only son. He was under the care of a well-known physician of the capital, but his parents, frightened at the doctor's diagnosis of a cerebral tumor, consulted Charcot, who diagnosed hysteria. The position in a circular arc during a crisis, and the craving of the boy for dolls, and all things looked after by little girls, were evident symptoms. He was sent to the hydrotherapeutic establishment, and the cerebral tumor disappeared under the repeated use twice a day of the spray, and the filiform douche. The treatment was continued for five months. The last case was that of a tall child, son of a nervous mother, who had, beside paraplegia, spasms of the œsophagus. He was unable to feed himself, and was alimented through a sound. After ten days' treatment, he was able to feed in the way of other people, and six weeks from the time of his arrival at Passy, he returned to his family perfectly well.

This brings us to the conclusion that the organization of water-cures in all our hospitals commends itself to Boards of Health (*Assistance publique*) in every city in France, and that the adoption of Fleury's doctrine by all who make use of baths in their treatment, will prove a great progress in the therapeutics of nervous diseases, so common in this age, and so discouraging for those who have not made a special study of hydrotherapy.—*L' Union Médicale.*

HEREDITY. — Brown-Séquard, at a meeting of the French Academy of Sciences, March 13, 1882, presented a communication on experiments made on Guinea-pigs, which prove that accidental affections of the parent are sometimes transmitted to the offspring.—*Archiv. Gen. de Médicine.*

ARTIFICIAL RESPIRATION.—Dr. De Chilly presented the following method of treating asphyxia: There is a mechanical means, extremely facile in its application, to force the asphyxiated to breathe with full lungs. It consists in converting the chest into bellows, the sides of which are represented by the ribs. In order to effect this result, it suffices for the subject to lie on the back, and as much as possible, on an inclined plane. The operator, standing on one side, with his face turned toward the subject's feet, dips the four flexed fingers of each hand as high as possible under the false ribs on either side, and grabs them firmly. This prehension should be made on either side where the parietes of the chest project the most below. Now, the operator executes alternate motions, elevating and depressing the ribs which give the chest its greatest expansion and compression, for the motions affect the whole sides of the chest.—*Bulletin de l'Académie de Médecine.*

This process is not new, but the description will refresh some readers' memories.

TREATMENT OF WHOOPING COUGH.—Jules Simon acknowledges that no specific exists for this disease, and after trying all the modes of treatment which have been extolled in turn, he falls back on the use of tr. of belladonna and tr. of aconite root in equal parts, giving two drops of the mixture morning and evening, and increasing to five or ten drops, according to age. After attaining the large doses, he diminishes them gradually to the original dose. At the same time, two or three emetics are given every week. For a child two years old, a teaspoonful of the following mixture will do:

℞ Powd. ipecac..... .0 | 5
Syr. of ipecac.....30 |
M.

Should the child vomit his food during a crisis, he should take a dessertspoonful of black coffee, and eat another meal.

The main indications to fill are, above all to avoid cold, and observe the strictest hygienic precautions. The child should remain ten days in bed, and stay indoors for a month or six weeks, according to the season of the year.—*Le Praticien.*

TREATMENT OF APHONIA IN SINGERS AND ORATORS.—Dr. Corson, in the *Revue Médicale*, advises in this trouble to take a piece of borax of .15 or .20 grams into the mouth and let it melt. An abundant secretion of saliva takes place. Public speakers, lawyers, preachers, etc., should take, the day preceding that when they have to speak, a glass of sweetened water in which is dissolved 15 grams of nitrate of potassium, which will cause profuse perspiration. Under the same circumstances the following gargle will be useful:

℞ Alum.....5 to 10
Honey 20
Barley decoction 200
M.

Another means consists in the use of an infusion of jaborandi, three grams in a cup of boiling water, to be taken in bed in the morning, to cause a good perspiration.—*Lyon Médical.*

EXPERIMENTAL RESEARCHES ON THE GRAFTING OF DEAD BONE UPON LIVING BONE; RESORPTION OF SEQUESTRA.—Mr. Lannelongue recently made a communication on this subject before the Surgical Society, May 17, 1882. Says the doctor: "A true sequestrum may exist under two conditions: it may either be bathed in pus, or be surrounded with granular membranes whose granulations come in contact with its sides and sinuosities. In the first case, clinical observations and experiments have shown that a sequestrum remains indefinitely *in statu quo*. In cases where granulations exist, there may be a good deal of absorption." Experiments made by Billroth on the process of resorption of ivory implanted into living bones or tissues, together with those of Langenbeck and Diffenbach, have supported that opinion. But Mr. Lannelongue's experiments were to the point. He used fragments of bone found in the halls of amphitheaters, where they had laid for years, and, after previous disinfection, introduced them into the bones of animals, in which they were subsequently absorbed. This is a demonstration that sequestra may, under some conditions, be reabsorbed.—*L' Union Médicale.*

Editorial.

CONGRESSIONAL APPROPRIATIONS FOR MEDICAL AND HEALTH PURPOSES.

The action of the present Congress in reducing the appropriation of money for carrying on the work of the National Board of Health, to so small a sum as to suspend much of the most important work of that board, is a striking illustration of Congressional ideas of political economy. We are no advocates of national centralization, or of calling on the general government to do what can be better and more economically done by the state or local municipalities. But a former Congress deemed it wise to create a National Board of Health, and to assign to it duties of importance to the whole people. During the brief period since its creation, the Board has certainly done much useful work, and has barely had time to mature plans for accomplishing much more, when it finds itself seriously crippled by an unreasonable reduction of the annual appropriation. The same spirit prompted the committee of one house to report in favor of reducing the ordinary appropriation for the library and museum of the Surgeon General's office from $10,000 to $5000, which, if finally adopted, would arrest the publication of the *Index*, and permanently injure both those important interests. If the national revenues were deficient, or if the same apparent economical spirit was manifested in regard to all the items contained in the appropriation bills passed by Congress, we might respect the motives of its members, however much we might think they erred in judgment. But when we find items in the same appropriation bills amounting to millions of dollars, freely voted, for objects of no national importance, we can neither respect their consistency

nor their ideas of economy. And when we look further and find that a majority of the members of the same Congress have deliberately voted more money, taken from the hard earnings of the American people, to pay for the *liquors and cigars* of one Congressional debauch, under the pretense of a battle-field celebration, than they are willing to vote for the support of two as important and permanent educational institutions as the Army Medical Museum and Library, we confess to a feeling even beyond that which is expressed by the word disgust. It is quite possible that the time may come when members of Congress will learn that the greater part of the sixty thousand or seventy thousand practitioners of medicine in the United States are voters.

THE AMERICAN MEDICAL COLLEGE ASSOCIATION.

This association, or what there is left of it, held a meeting in Cincinnati recently, the proceedings of which are published in a recent number of the Detroit *Lancet*. We notice that a list of colleges is given as having withdrawn from the association since it adopted the requirement of three years' study and three consecutive annual courses of college instruction, in such a way as to convey the impression to the reader that all the colleges mentioned withdrew *because* of the *adoption* of such requirement. Yet the Chicago Medical College is included in the list, when the officers of the association well knew its withdrawal was based exclusively on the fact that if the association ever did anything it would recede from such requirement, and the College was not willing to accompany it in any such retrograde movement.

The *British Medical Journal* says that "the commission appointed by the French Academy of Sciences to investigate the question of the advisability of modifying the system of quarantine in Egypt have sent in their report." But it is no longer a question of quarantine, but one of exclusion.

Items.

IODOFORM INSANITY. — Schede has noticed that the use of iodoform has been attended with marked psychical symptoms. One type which is very noticeable among children is marked by dullness of the special senses, vomiting, and spasms of single groups of muscles. In adults, Schede has on two occasions seen general mental confusion, loss of personal identity, loud singing and violence. He has had under observation cases of melancholia attonita, also two cases of melancholia with frenzy, and three cases of simple melancholia; all arising from the use of iodoform.

THE NATURE OF INSANITY.—Dr. Charles Mercier (*Journal of Mental Science*, January, 1882) discusses the nature of insanity, and endorses the opinion that insanity was the failure of adjustment of the organism to its environment, expressed by Hughlings Jackson before his paper was completed. Exactly the same opinion was expressed in an article on insanity in *Gaillard's Medical Journal*, Vol. II, p. 452, in slightly different terms.—*Journal of Nervous and Mental Disease.*

Mr. F. M. Balfour was on Wednesday, May 31, elected to the new professorship of Morphology in the University of Cambridge. Prof. Balfour is a young man, having taken his degree, through the Natural Sciences Tripos, in 1873; and it is to be hoped that the duties of his professorship will not interfere with his continuance of the work of original investigation for which he has shown himself so eminently qualified.

There is no such tonic as happiness.

Selections.

A STUDY OF BLOOD. By LESTER CURTIS, M.D., Chicago, Ill.

In the transactions of the American Medical Association for the year 1875 appeared a paper by Dr. Louis Elsberg, of New York City, entitled, "Notice of the Bioplasson Doctrine." It gave the results of some researches carried on in the laboratory of Dr. Carl Heitzmann, formerly of Vienna, but now of New York, and was concerned with the structure of the cell.

According to these observations, every cell contained fine fibers which branched and inosculated and formed a close net-work, which filled every part of the cell. This network was supposed to exist in all cells, its contractions and relaxations to constitute the amœboid movements of cells; in short, it was supposed to be the living matter of the cell. Before this time Dr. Heitzmann himself had described the same thing in a paper before the Vienna Academy of Sciences, in the year 1873, entitled "*Bau des Protoplasms.*"

Very little notice was taken of the subject at first, at least in this country. But of late several papers on the subject in Europe, and especially its favorable notice in Klein's Atlas of Histology, have given it more prominence.

The subject is one which differs from ordinary histological subjects, such as the structure of a gland, or the termination of a nerve, which persons interested in some other department of biology can afford to ignore. It is concerned with the very foundations of physiology and histology. It is of as much interest to the botanist, the diatomist, or the student of life in any form, as to the student of human physiology and histology. If the doctrine prove true, we shall have made a long step in ad-

vance in the understanding of cell growth, and shall have to unlearn many things which, until now, we had supposed settled. As I am occupying a position where I am expected to have some knowledge of my own about such things, I have looked into the matter for myself.

In order to make sure of pursuing the right course, I wrote to Dr. Heitzmann, asking him his method of demonstrating the structure, and received the following reply:*

NEW YORK, June 30, 1879.

LESTER CURTIS, M.D.,—*Dear Doctor:* In reply to your favor, dated June 27, 1879, I have to say as follows: The lens for seeing the structure of protoplasm must be a first-class 1-10 Immers., such as I use of Verick's, Hartnack's, Grunow's and Tolles' manufacture. Just the reticular structure itself is the best test for a lens, so far as my own experience goes.

Take a drop of pus, fresh, without adding anything, and you will see the wonderful structure in each pus corpuscle with great ease.

Prick your skin on the palmar surface of the thumb, transport the drop on a slide, and cover right away with a thin covering glass, the edges of which have been oiled, so as to prevent evaporation of the fluid. In the perfectly fresh blood you will see the structure in each colorless blood corpuscle.

Add to a drop of fresh blood a small drop of 40 per cent. solut. of bichromate of potash; this will, within 1 hour, extract the hæmoglobin, and you must succeed in seeing the reticular structure in each red blood corpuscle.

Keep ordinary yeast (Torula cerivisiæ) for a fortnight in a 30 per cent. solution of bichromate of potash, and examine a drop with a good 1-10 Immers. lens. You cannot fail in seeing the network in each oidium.

Take any protoplasmic body, best epithelium, cartilage, etc., best kept for a few weeks in ½ per cent. solution of chromic acid; take any fresh living protoplasm such as, for instance, an amœba from an infusion, and you must see what is to be seen with accuracy. If you fail, come to New York to my laboratory, top floor of my residence, and after two hours you may leave for Chicago, with the satisfaction that the net-work in the protoplasm is plain. About four hundred gentlemen have seen it so far in my place.

Yours truly,

DR. C. HEITZMANN,
No. 37 West Forty-fifth Street.

On receipt of this, I repeated the experiments as directed. The glasses I have used are a 1-10 immersion, made by Wales in 1874; a pretty good glass for one made at that time. It has, in my hands with sunlight and a slip of blue glass, gone through Möller's balsam *probe platte* without difficulty. I also used a

*I publish a careful copy of this and the following letter, by Dr. Heitzmann's permission.—L. C.

Powell & Lealand 1-16 made later in the same year. With this glass I have glimpsed the lines on the dry *amphipleura* by simple lamp-light, without any sub-stage appliances whatever. In Mr. Tolles' hands, by the use of his traverse lens, it showed the lines on number 20 of the *probe platte* fully as well as one of his earlier duplex 1-10s, although, since that time, I have seen the diatom better with one of his later 1-10s. I use a stand made by Bulloch, fitted with a Powell & Lealand achromatic condenser. I find that for making out delicate anatomical structures, with the use of high powers, the condenser is indispensable.

I began my investigation by the study of blood as directed by Dr. Heitzmann. I split off a thin film of mica and oiled the edges. I then pricked my finger with a needle, put a drop of blood on a slide and covered it immediately with the mica. I began the examination with the 1-10. On bringing a white corpuscle into view, I thought, at first, that I saw the net-work; a number of fine lines appeared, crossing the corpuscle in all directions, but the outlines of the red corpuscles in the field were indistinct. The glass had been used in examining objects protected with a thicker cover, and was not adjusted for such a thin film as I was then using. In order to improve the definition I turned the screw collar. As I turned, the outline of the corpuscle grew sharper, but the net-work became more indistinct. Finally, when the outline of the corpuscle came out clear, I could see nothing of the network. Instead, the corpuscle appeared to be covered with small nodules of unequal size, placed at irregular intervals.

I went through nearly the same experience when, in place of the 1-10, I put on the 1-16. At first, before the cover adjustment was right, an indistinct appearance resembling a network was seen. But, when the adjustment was such that the outline of the red corpuscles in the field was sharpest, the same thing was seen as with the 1-10, only with greater clearness. I could, with the 1-16, by toying with the fine adjustment, focus the top of the nodules, while the remainder of the corpuscle appeared in shadow; and then, by gently lowering the glass, I could bring the valleys into view and leave the tops of the nodules indistinct. By changing the direction of the light, I could make the nodules

cast shadows in first one direction and then in another. With all the care I could use, I could get no other appearance of a network than I have described as showing when the adjustment of the glass was wrong.

Having an abscess handy in my own person, I next examined some fresh pus, first with the 1-10 and then with the 1-16, as I had done with the blood.

The pus showed very nearly the same as the white blood corpuscles, possibly more distinctly. Several of the pus corpuscles were packed full of dancing granules. The movement of these granules seemed to be independent of each other, and reminded me of small animalcules imprisoned in a narrow space. By fixing my attention on one of them, and watching it for some time, I have seen it change its location and travel nearly half way across the corpuscle before escaping from view.

I next put a drop of blood on a slide, and added to it a small drop of a 40 per cent. solution of bichromate of potash. After an hour or two, I examined the red corpuscles with the 1-10 and 1-16 as I had done with the fresh blood. Many of the corpuscles had lost a good part of their color. With the color, they had also lost the smooth surface which they usually possess in the fresh state. The edges were finely crenated, the surfaces were thrown into nodules and ridges, and all the corpuscles were pinched and shrivelled, and were much smaller than the fresh corpuscles, appearing as though acted upon by an astringent.

I took the trouble to measure seven of these corpuscles in a given area of one field of the microscope. They were as follows, measured in both directions, and given in parts of an inch :

(1)	1–6,000	1–4,500
(2)	1–5,000	1–5,200
(3)	1–4,500	1–3,700
(4)	1–4,500	1–3,871
(5)	1–4,275	1–3,946
(6)	1–6,000	1–3,461
(7)	1–3,461	1–4,687

Here, also, I failed to get satisfactory evidence of the existence of a network; though the shadows between the ridges and elevations might resemble one.

I carried my investigations to this point, and, after carefully reviewing my work, to be sure I had made no mistake, I wrote to Dr. Heitzmann again. I told him how I had proceeded and what I had seen; I also enclosed some drawings of white corpuscles as they appeared to me, and some of red corpuscles, which had been acted upon by the 40 per cent. solution of bichromate of potash, and asked his interpretation. He sent me the following letter:

NEW YORK, Feb. 8, 1880.

DR. LESTER CURTIS. *My Dear Doctor:*—I have read your letter with great interest. It merely proves how difficult it is to learn microscopy as an autodidact without the assistance of a reliable teacher. The network is seen plainly when the peripheral contour is not plain; in a globular body the central portion shows the structure best when the periphery is out of focus. You evidently did not learn to discriminate between different layers in one and the same corpuscle, as illustrated by your sketches. You draw everything—in and out of focus. You should draw only what is clear and sharp in *one* focus. Look at the Histology Atlas by E. Klein and Noble Smith, first volume (1879. Lippincott publishers). E. Klein is the best microscopist of London, England; he draws the network even nicer than it really appears, and gives me credit for the discovery.

Purchase for a few cents the recently issued researches on red blood corpuscles, by L. Elsberg (1879. Putnam Sons, N. Y., publishers) and you will see and learn everything you desire. You evidently are a good, faithful man. Could not you come to New York in my laboratory? Here you would learn more in one day than you possibly can learn at home in months.

Yours truly,

DR. C. HEITZMANN.

On the receipt of this letter I was, of course, dismayed at my great presumption in attempting to make out the structure of a blood corpuscle with a 1-16th of an inch object glass; a task so much more difficult than resolving the *amphipleura* that no ordinary mortal may ever hope to accomplish it. But I could not resist the temptation to return to the subject. Accordingly, I re-studied the white corpuscle. I found that when I had, by careful manipulation, succeeded in focusing the bottom of the valleys, I could go no further, the slightest touch of the fine adjustment, the slightest pressure upon the limb of the instrument, even, would cause a blurring of the image. I tried again and again, and am obliged to confess that I cannot focus different planes of a white blood corpuscle.

While I was doing this my mind would keep reverting to the

war once waged over the structure of diatoms; how the nodular surface of pleurosima angulatum was supposed to be covered with hexagons so strikingly similar, in some respects, to this network; and I remembered how the whole thing was cleared up when object-glasses and modes of examination became more perfect. The idea would keep coming to me that this network, also, was an optical illusion, explained in the same way.

I began a series of persecutions of my friends. I importuned almost every one that I knew, who had a microscope, to look over the subject and tell me what he saw. Some of these were persons of recognized skill in microscopic manipulation. Some, even, have a national reputation. Many were kind enough to do as I requested, but no one was able to see the network. Indeed, I have never seen any one who claims to have seen it. A few have allowed me to use their names. Dr. H. A. Johnson, of this city, carefully went over the ground with me, using a superb new Tolles' 1-10, and a new Zeiss 1-12 homogeneous immersion. He considers what I have described to be true appearances. Dr. Sternberg, of the United States Army, has studied the white blood corpuscle especially, with the best appliances at the command of the Government. He tells me that he has never seen such a network.

A professor in one of the medical colleges in this city, in one of his lectures, described the network, as given by Klein, as a new discovery. Later in his course he corrected this statement, and said that subsequent investigation had convinced him that the network was an optical illusion. This was done independently of my work.

I might increase the list, but do not feel justified in using the names without permission.

As to Dr. Heitzmann's criticism of my drawing, I will only say that I had supposed a drawing for scientific purposes to be good, not as it left out objectionable details and improved upon those represented, but just in proportion to the accuracy with which it reproduced the appearances seen. It has always been my aim to represent objects as nearly like what I saw as I could. Any other course has seemed to me to be not only bad drawing, but absolute dishonesty.

While engaged in these studies I met with certain bodies which I have not seen described elsewhere just as I have seen them, although Dr. Osler and others have spoken of having seen something like them in the blood of the lower animals.

The bodies are minute granules. They can be seen in blood, with a good high-power glass, without the addition of any reagent, but are best seen after staining. If, while studying blood with the microscope inclined, a drop of carmine staining-fluid be placed at the upper edge of the covering-glass, there will be seen bright red points sliding across the field of the microscope long before any other evidence of staining appears. As the staining-fluid comes down further, the points increase in number, until finally, when the field of the microscope has been entirely traversed, they are countless. Under a magnifying power of twelve hundred diameters, they appear as minute, round bodies. Their small size renders a measurement of them difficult; but I have estimated their diameter at from 1-20,000 to 1-40,000 of an inch. They stain deeply with carmine, and are highly refractile, the stained ones appearing as bright red points surrounded by a black rim. The width of this rim varies as the focus is changed; when they are slightly beyond the focus, the red point disappears, and they show as black dots.

I have seen these bodies in the blood of every person which I have examined, with one exception. I studied the blood of Mr. Griscom during a long fast which he underwent in Chicago. For part of this fast these bodies were absent. During their absence I observed many granular white corpuscles of exceptionally large size. They seemed to be composed of spherules of about the same size as the granules before described. The corpuscles often had an active amœboid movement. At this time the granules flowed out into the protruding portion in a kind of stream. Aside from this motion the granules were usually still. Occasionally, however, they had an independent motion, like the motions of the granules in the pus corpuscle before described. I have watched one of the granules move for a considerable distance through the corpuscle; the other granules at this time were vibrating uneasily like individual bees in a swarm. The corpuscle itself, with the exception of an almost imperceptible vibrating movement, remained still.

These corpuscles usually had one or more places destitute of granules, which resembled nuclei. The spots did not stain with carmine, and were unmistakable depressions. They seemed to me, therefore, to be places free from granules, rather than nuclei. Their floor showed a slightly uneven surface.

I studied these bodies for about two weeks, the time of the absence of the granules from the blood. After a time the granules began to return. At first they were of a low, refractive index, and stained faintly; gradually they assumed their usual appearance.

About the time of the reappearance of the granules, I noticed a change in the granular corpuscles. They stained more readily and more deeply with carmine than ever before; the places destitute of granules became larger and more numerous, and I began to see appearances as though granules were leaving them. On two occasions I saw bodies which presented all the appearances of the other granular corpuscles except that the nuclear-like space had enlarged to such an extent that the body was nearly destitute of granules. Many granules were seen in the act of passing out from the corpuscles, and many were seen near the corpuscles, as though they had just left them.

The conclusion from these facts seems to me to be warranted, that the granular corpuscles, at least, are composed of minute round bodies held in a stroma, and that, possibly, they may be the source of the granules found in the blood.

EXPLANATION OF PLATE.

Fig. 1. An ordinary white blood corpuscle, with one red corpuscle.

Fig. 2. An ordinary white blood corpuscle from another person, and two red corpuscles, lying one over the other.

Fig. 3. Granular white corpuscle from Mr. Griscom; granules beginning to leave the body.

Figs. 4 and 5. Granular corpuscles from Mr. Griscom, discharging their granules.

Fig 6. A white blood corpuscle referred to by Dr. Heitzmann; from Klein's Atlas of Histology.

Figs. 7, 8, and 9. Representations of the network from "The Structure and Other Characteristics of Colored Blood Corpuscles," by Louis Elsberg, page 46, referred to by Dr. Heitzmann.

Fig. 7. Represents the network at rest. Fig. 8. In extreme contraction. Fig. 9. In extreme extension. These figures cannot be magnified less than 20,000 diameters, and must, therefore, be diagramatic.

PLATE VI.

Fig. 1.

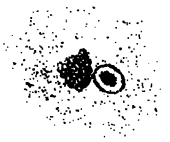
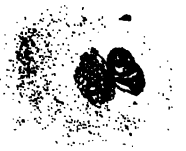


Fig. 2.

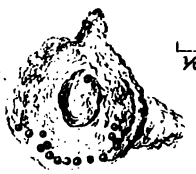


1/1000 Inch X 582

Fig. 3.

1/1000 of an inch X 1050.

Fig. 4.



1/1000 of an inch X 1050.

Fig. 5.

1/1000 of an inch X 1050.

Fig. 6.

Fig. 7.

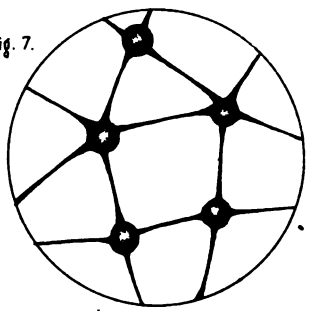


Fig. 8.

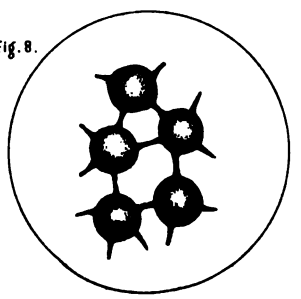
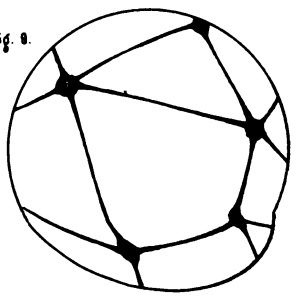


Fig. 9.



REPORT OF THE POST-MORTEM EXAMINATION OF THE BODY OF CHARLES J. GUITEAU, (who Died by Hanging June 30, 1882, at the United States Jail, Washington, D. C., in Execution of Judicial Sentence.)

The following physicians were present:

Dr. Noble Young, Physician to the Jail; Dr. A. McWilliam, his assistant; Dr. C. H. Nichols, Supt. Insane Asylum at Bloomingdale, N. Y.; Dr. A. E. McDonald, Supt. Insane Asylum, New York City; Dr. W. W. Godding, Supt. Government Insane Asylum, District of Columbia, and Drs. Witmer and Patterson, his assistants; Dr. Geo. L. Porter, Bridgeport, Ct.; Dr. Johnston Eliot, Washington, D. C.; Dr. D. R. Hagner, Washington, D. C.; Dr. Robert Reyburn, Washington, D. C.; Dr. W. J. Morton, Editor of *Journal of Nervous and Mental Diseases*, New York City; Dr. C. L. Dana, New York City; Dr. C. K. Mills, Philadelphia, Pa.; Dr. D. C. Patterson, Coroner, Washington, D. C.; Dr. J. F. Hartigan, Physician to Coroner; Dr. C. H. A. Kleinschmidt, Washington, D. C.; Dr. P. J. Murphy, Washington, D. C.; Dr. Z. T. Sowers, Washington, D. C.; Dr. F. B. Loring, Eye and Ear Dispensary, Washington, D. C.; Dr. D. S. Lamb, Acting Ass't Surg., U. S. A., and Dr. J. C. McConnell, Microscopist, and Mr. Ernst Schafhirt, Anatomist, Army Medical Museum.

The custodian of the body, Rev. Dr. W. W. Hicks, having requested me to make the examination, and this request being in accordance with one previously made by Dr. Young, I had prepared the following course of procedure, with the object of securing the most exact and satisfactory results: The external appearances of the body should first be noted; the cavities, except the spinal, should be opened and their contents examined; that after the removal of the brain, and its examination without incision, it should be transferred, properly guarded and protected, to the Army Medical Museum, where, through the courtesy of the Curator, Surgeon D. L. Huntington, U. S. Army, it would be photographed, and then a cast be taken; that its internal structure should then be observed, and portions set apart for microscopical examination; and that the entire operation should be

completed, as far as possible, the same day, to enable physicians resident elsewhere, present by invitation, to return promptly to their homes; and that the notes should be taken in duplicate.

Shortly previous to the examination, it was agreed between Rev. Dr. Hicks and the United States District Attorney, Geo. B. Corkhill, that the charge of the removal, preservation, and disposition of the brain should be vested jointly in Drs. Lamb, Sowers and Hartigan, and that the microscopical examination should be made by parties to be selected by the gentlemen making the agreement.

The examination was then conducted by me, assisted by Drs. Hartigan and Sowers and Mr. Schafhirt, and as near as possible in the order proposed. Drs. Kleinschmidt, Patterson, and others, took notes, and Mr. Charles Trought, of the Museum, the photographs.

By reason of delays, for which neither I nor my assistants were responsible, the examination was not begun until 2:30 P. M. (one hour and a half after death), in consequence of which the photographing was less successful, and a cast was impracticable.

The body, which was of a faint yellowish tint, was that of a man about five feet seven inches in height, and weighed one hundred and forty-five pounds.

The eyes were examined by Dr. Loring, who reported that the pupils were slightly and equally dilated; the vitreous was cloudy, and the fundus indistinguishable. The conjunctiva of the left eye was congested. He repeated the examination two hours later, and noticed an appearance as of transverse fracture of the lenses.

A small white scar, directed obliquely downward, forward and to the left, and confined to the scalp, was observed midway between the top of the left ear and median line of the head.

There was a yellowish furrow, a few lines in width, extending around the neck in a direction downward and forward, in line of rope. On dissection, the sterno-cleido-mastoid muscles were found to be torn in two, about half way between their points of origin and insertion. The thyro-hyoid ligament was also ruptured, and the hyoid bone and thyroid cartilage widely separated. The

large blood-vessels were not injured; neither was there fracture nor dislocation of the vertebræ.

The sexual organs were well developed; the mouth of the urethra was moist.* There was also phimosis, on reducing which, a considerable accumulation of smegma was observed.

Skull.—The right parietal bone was slightly flattened over a space about two inches square, just back of the fronto-parietal suture and to the right of the interparietal; there was a slight flattened elevation on the corresponding internal surface of the calvaria. The frontal suture was obliterated, the others quite distinct. A number of Pacchionian depressions were observed near the groove for the longitudinal sinus. In thickness the skull presented nothing remarkable.

Membranes of the Brain.—The dura mater was firmly adherent to the anterior portion of the calvaria in the vicinity of the longitudinal sinus.

There were adhesions of the dura also to the base of the skull; they were quite firm, and situated in the several fossæ, and most marked in the deeper parts of the fossæ, where also there were small patches, abruptly limited, of immovable arborescent congestion, with, however, no attendant thickening or pigmentation; this *stagnation* was again most marked in the left anterior and middle fossæ. There was no congestion of the dura except at the points just noted.

The dura and pia mater were adherent to each other and to the brain on both sides along a limited portion of the longitudinal fissure, in the vicinity of Pacchionian granulations.

The dura was slightly thickened along the longitudinal sinus. It was also slightly thickened and opaque along a portion of the line of the middle meningeal artery on each side.

The arachnoid of the upper convexity of the brain presented in many places, where it covered the sulci, small patches of thickening and opacity; elsewhere it was normal.

The pia mater was anæmic anteriorly; posteriorly there was slight hypostasis.

The cerebral vessels appeared to be normal in all respects.

* During the suspension of the body, erection of the penis took place, and the clothing was afterward found to be moist.

The orbital plates were well arched, and presented many conical eminences of large size. There was no roughening anywhere of the inner surface of the skull.

The brain was firm. Its weight, including the cerebrum, cerebellum, pons and medulla, and a portion of the dura, was 49½ ounces. It was slightly flattened in the region corresponding to the flattening of the parietal bone above mentioned. On section of the cerebrum there was an appearance as of slight thinning of the gray cortex; the measurements taken, however, gave depths of one-sixteenth to one-eighth inch in close proximity to each other. The white substance was almost absolutely anæmic. The cerebellum and island of Reil were both *covered* on each side.

The fissures.—The fissures generally presented a considerable depth; in many places, as in the right fissure of Rolando, amounting to seven-eighths inch.

The right fissure of Sylvius was typical; the left was separated from the first temporal fissure by a slight bridge deeply situated. The right fissure of Rolando did not connect with the fissure of Sylvius; the left was separated only by a small bridge deeply situated. Both were separated from the longitudinal fissure.

The first frontal fissure on the right side was not connected with that of Rolando, but at the posterior part was crossed by a secondary fissure. The same on the left side, except that the fissure was crossed by a small bridge near its center. The second and third frontal fissures presented nothing remarkable. There were numerous secondary fissures.

The præcentral and retrocentral fissures, on each side, were well defined, and were unconnected with other fissures. The interparietal fissure, on each side, terminated in the transverse occipital, separated only by a slight bridge. The parieto-occipital was well marked on each side. The transverse occipital fissure on the right side was ill defined; it began on the median surface and extended well outward. The first temporal fissure was well developed on the right side; on the left, was not of the usual length. Wernicke's fissure was well marked on the left side, but not confluent.

The calloso-marginal fissure was double on each side; the upper of the two being probably the true one. On the right,

the upper one extended back to the anterior margin of the paracentral lobule; on the left, not quite so far. The lower one extended on the right side to a line about half an inch in front of the parieto-occipital fissure, from which it was separated by a small bridge; on the left side, also, by a bridge of larger size.

Orbital Surface.—On the right side were seven fissures, radiating from a circluar fissure surrounding a small isolated convolution; on the left side were five fissures, radiating from a small shallow depression. The left collateral fissure was well defined, extending to the anterior extremity of the temporal lobe; the right was also well marked, but did not extend so far back as the other, and there was an attempt at confluence anteriorly with the temporo-occipital, a small bridge intervening. The left temporo-occipital fissure was well defined.

The Convolutions.—The following alone call for remark: The ascending frontal was well defined on each side.

The ascending parietal on the right side was well developed in its lower three-fourths, but narrowed in the upper fourth. On the left side the narrowing was less marked. The island of Reil presented on the right side five fissures and six straight gyri; on the left side seven fissures and eight straight gyri. The paracentral lobe was well marked on the right side; small on the left.

Thorax and Abdomen.—The usual median incision was made, and the abdomen opened. There was an extravasation of blood into the right pectoralis major muscle near the second rib. The adipose layer of the abdominal section was one inch in thickness. The dome of the diaphragm extended up to the fourth rib on each side.

There were old pleuritic adhesions at the apex of the right lung; the upper and middle lobes were congenitally united by connective tissue. The lung was normal throughout. There were also old pleuritic adhesions of the left lung to the diaphragm and between its lobes; three small tubercle-like, pigmented patches were observed in the upper lobe. The heart weighed ten and three-quarter ounces; its muscular substance was apparently normal. There was an abundance of fat upon its anterior surface, and a villous patch of old pericarditis near the apex of the left ventricle. The right ventricle contained a little blood just form-

ing a clot.* The valves were normal. The aorta was slightly atheromatous for a short distance above the valves.

All of the abdominal viscera presented large accumulations of fat. They were normally situated. The liver was congested; the gall bladder contained a little bile; the spleen was lobulated and enlarged; it weighed eighteen ounces; the capsule was bluish, the substance brown; the Malpighian bodies hypertrophied;† the pancreas was normal; the stomach contained food;‡ the intestines appeared normal; were not opened; the kidneys were congested; there was a small superficial serous cyst on the right one. The bladder contained a considerable quantity of urine.

The results of the microscopic examinations will be reported hereafter. D. S. LAMB.

Army Medical Museum, Washington, D. C., July 4, 1882.

THE CONTAGIOUS DISEASES OF DOMESTIC ANIMALS.§ By EZRA M. HUNT, M.D.

The degree to which the diseases of animals are now attracting public attention has many foundations of propriety and necessity. If it were only that their sufferings and their wants appeal to our sympathy, and have claims upon our care, that appeal ought to secure some intelligent attention to their ailments. But they have become more intimately associated with us, in a scientific and practical sense, by the revelations and advancements of modern science. Biology compels us to include all life, and all its limitations, in our studies. Physiology and pathology, as applied to the whole animal world, indicate that the old recognitions of a comparative anatomy were but feeble expressions of those laws of symmetry which, in similarities and dissimilarities, in health and in disease, make the comparative study in physiology and pathology of still broader import.

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* A considerable quantity of dark blood ran out of the heart in the separation of the heart and lungs.

† Dr. Young states that the man was subject to malarial attacks while in the jail.

‡ He had eaten a dinner about an hour and a half before the execution.

§ Paper read before the American Health Association, Savannah, November 29, by Ezra M. Hunt, M.D., Secretary of State Board of Health, N. J.

Professor Flowers, in his address at the opening of the anatomical section of the late Congress, speaks of the "great revolutionary wave which has changed the whole aspect of biological ideas, borne onward mainly by the enormous advances in our knowledge of zoölogy, comparative anatomy and embryology."

Comparative anatomy was sure to become a prominent study so soon as we learned that the study of function is fully as important as that of structure.

Buckle, in his History of Clvilization, says: "The best physologists distinctly recognize that the basis of their science must include not only the animals belów man, but also the entire vegetable kingdom, and that, without this commanding survey of the whole realm of organic nature, we cannot possibly understand human physiology; still less general physiology."

It is inevitable that comparative pathology must embrace all the diseases of animal and vegetable life. Sir James Paget, in his address, some months since, on elemental pathology, traced the comparative diseases of plants and trees, and morbid growths thereupon, in a way that showed how in this sphere we have much to learn. Dr. Wilkes well says the comparison of disease in men and animals may throw much light upon its nature; and it is remarkable that so few persons have been stimulated to the work by considering the long controversy which has taken place as to the relation between vaccinia and variola, or hydrophobia and rabies. A true human pathology should have its basis in comparative pathology. Here lies a "mine of wealth but little worked." It is evident that in all these directions there are demands for the closest study and comparison.

But to the disciples of prevention and the health publicist there are inducements and obligations additional to these. Many of the diseases which it is our duty to prevent are derived or derivable from animals.

The list furnished by Professor Law to the National Board of Health names ten contagia and twenty-two parasites common to men and animals, besides fifteen parasites causing enzoötics in animals.

Dr. Charles Cameron, chairman of the health section of the late English Social Congress, says: "Recent discoveries show

the enormous importance of the study of comparative medicine and pathology. It is only by such knowledge that preventive medicine can be most rapidly and surely advanced."

There is not merely the incidental fact enlarged upon by Ernest Hart, when he tabulates fifty typhoid epidemics, fourteen of scarlatina and seven of diphtheria, as somehow having their origin through milk supply.

Tuberculous disease is now claimed to be transferred by milk from animals to man, as well as the foot and mouth disease so much dreaded in England. Forms of anthrax and splenic fever and erysipelas, and perhaps some forms of boil, carbuncle and skin diseases, depend on specific conditions of diseased meat.

Some allegations have also been made as to ill effects from the flesh of so-called hog cholera disease, and as to lard made into butterine therefrom.

It becomes our duty to prevent disease in the lower animals, if only to prevent their transfer to mankind. The prominence which the study of parasitic diseases has very properly assumed attaches to this study a vast importance.

Dr. Cobbold, the eminent helmintologist, has catalogued upwards of 200 specimens in the museum of the College of Surgeons, London, in order "to show every parasitic animal that can affect the human body, and a selection of the principal types of those that inhabit the lower animals, especially such species as are associated with man."

To these we are constantly having additions, as in the new nematode discovered by Bastian, in the case of the boy who was at first supposed to have died of typhoid fever on the training ship Cornwall.

So impressed have not only professional men, but the public, become with the liabilities to various diseases that may occur through the flesh or milk of animals, that there is still another view that presses itself upon our attention.

There is no class of ailments against which the individual is so helpless to defend himself, and hence governments are striving to find out the extent of such maladies, and the means for their limitation and extinction.

Already, as we are well aware, the subject comes up as a great

commercial question, and as involving great economic questions as to food supply.

No one can witness the rigid inspection now being had in England of all foreign cattle and sheep, and the interdiction which has so fallen upon American swine as almost to banish its live-stock from foreign markets, and to affect the trade in hams and salted pork, without realizing that the question has assumed importance which, alike in the interests of health and of trade, deserves the closest attention of all sanitarians.

Great Britain imports 5,250,000 cwt. annually.

In the present paper we propose to refer to most of these various diseases with only brief allusions.

Foot and mouth disease has, fortunately, not planted itself upon American soil. In the cases alleged to have come from our ports, Dr. Lyman, the chief veterinarian of the Agricultural Department, has been able to show that they were not American cases, but two bulls and eight heifers sent from England. They were promptly quarantined, and no spread among our cattle occurred. Yet because of the degree to which this disease, if imported, would affect our meat, and still more our milk supply, it is incumbent upon us to take all proper means to secure its exclusion.

Contagious pleuro-pneumonia, although occasioning great loss of stock and milk supply, has not as yet been proven to cause any specific disease through the meat or milk. Yet the trend of present opinion (see Cameron, etc.) is to look with suspicion upon it, as well as to regard it as a threatening source of inferior meat supply. There are urgent reasons why it should be watched and studied by sanitarians, both in the interests of health and of trade. For it is to be remembered that whatever reduces the quality of meat or adds to its scarcity, is at least indirectly the cause of ill health, since the poorer classes suffer physically from the higher prices, and have to feed on inferior flesh.

Splenic fever and other forms of anthracoid disease are of great interest to us, because they may be communicated by inoculation, or by the eaten meat, and also because the Texas cattle fever bears a suspicious relation thereto, so that it is called, by some good authorities, a splenic fever, or anthracoid disease.

While the most fatal and pronounced form of splenic fever is more common among foreign cattle than with us, these allied forms are to be closely studied, and guarded in the interests of public health. All cattle now going from America are closely watched for Texas fever. Recently we saw some cases in the yards at Birkenhead, which were feared to be of this or some splenic variety.

There is no contagion more dreaded than that of these anthracoid diseases.

In France the disease, as it affects sheep, is a loss, we are told by Pasteur, of twenty million of francs, or four million of dollars annually.

Our losses by the Texas cattle disease have been large enough to lead to close inquiry, and the production or sale of such meat comes immediately under the commendation of the sanitarian.

Within the present month it has been my duty to exercise watchful oversight of a localized outbreak of anthrax. Ten cows, three horses, three sheep, one hog and several pigs have died, as if infused with a virulent poison, and post mortems have indicated the splenic character of the outbreak. The swine perished within forty-eight hours after having gotten a taste of one of the lungs, and a bull, which had broken into the pasturage, died in three days. A farmer who assisted in a post-mortem, and whose hand had no abraded surface, had swelling of the arm and other symptoms, which required medical care.

The swine disease, known as pneumo-entertis, swine plague or hog cholera, has prevailed in at least thirty of the States, and the losses by it have been enormous. The special report, No. 12, of the United States Department of Agriculture, 1879, refers to a tabular statement for 1877 of the losses of farm animals, chiefly from infectious and contagious diseases. The amount is stated at $16,653,428. About two-thirds of this sum was occasioned by the loss of swine by diseases presumed to be of an infectious or contagious character.

This particular disease continues to prevail in many parts of the country, and is far more common than in Great Britain or on the continent of Europe. Yet Fleming, in his *Veterinary Journal* for September, 1881, speaks of it as "an inoculable disease,

due to a particular germ, which in Europe and America threatens to ultimately exterminate the porcine species."

Because it does not produce such a disease as trichinosis, its effects upon the quality of food supply must not be overlooked.

The immense losses not only affect the poorer classes by causing higher prices, which means a diminished supply of meat, but furnishes a great quantity of meat of inferior if not of diseased quality. There have been cases of sickness from pork that have not been caused by trichinæ. The new nematode found in the boy who was thought to have died of trichinæ on board the ship Cornwall (see report of Mr. Powers and Dr. Bastian, local government board, 1879), has been already alluded to.

Ballard and Klein have recently reported an acute specific disease produced by eating pork infected with a species of bacillus in two series of cases (see State Med. Sec., meeting Med. Congress, 1881), the pork being claimed to have come from America. The disease might be called a pneumo-enteritis, as both lesions were found.

Prof. Tidy, chemist of London Hospital, in some recent researches as to poisoning from eating pork sausages, thinks he has shown an alkaloid body and some chemical changes to have caused the sickness. Meat of diseased animals putrefies more readily and shows a tendency to a septic condition which the juices of the stomach are not always able to resist.

Cases of meat poisoning that are not specific in any known sense, are multiplying.

There is a very great temptation in the case of small animals, like swine, when a disease breaks out among them, to hasten them into the potted meat can, the sausage machine, or the salt pork barrel. Any disease so extensive in its ravages and so deadly in its type, must be carefully studied by the sanitarian as a guardian of the public health.

To the disease known as trichinosis we need to turn especial attention, because of its direful results, its real existence, and the interdiction it has caused to our own great pork trade in almost every foreign country.

It is not necessary here that we sift all the historical and political facts which have to do with this trade interruption. Enough

is real to justify serious attention, and enough false or accepted on insufficient evidence to astonish us that countries which have long been the recognized producers of cases of the disease should all at once have seemed to assume that trichinosed pork is an American production. Neither is there need that we fully trace the disease and its results, since this has been so often and daily done, and because the monograph by our fellow member, the lamented Surgeon W. C. W. Glazier, of the Hospital Marine Service, has so fully presented it.

We think he and others show that its occurrence here in proportion to the number of our people and our immense number of swine is not equal to that of other countries. This nematode was first discovered in Guy's Hospital, London, in 1833, and up to 1836, inclusive, nine cases had been found among hospital patients in that city; one in Bristol, England; and six in Ireland. In 1843 the trichinæ was observed in Denmark, and not long after in Germany. It is to be remembered that all these cases, as also the monograph of Luckhart and the paper of Zenker, as well as most of the observations of Virchow, antedate the record of any fatal case in the United States. The first series of American cases are those alluded to by Virchow, as having occurred in Davenport, Iowa, in 1856, in a German family. The mother returned to Germany in 1861 and died in 1864 in a German hospital.

In her breast, which had been extirpated for cancer, encapsulated trichinæ were found. Before this the disease had become well-known in Great Britain and Europe, and perchance the German woman was a host of the cyst on her first arrival here.

The report of Dr. J. L. W. Thudicum on the parasitic diseases of quadrupeds used for food, is the report of the medical officer of the Privy Council, 1864, covers the history up to that time. The list of Dr. Glazier of trichinosis epidemics in Europe since 1860 (pp. 82–87), and that of cases in the United States reaching to 1880 (p. 172), completes the record, and shows how great a portion of the aggregate has occurred in other countries. His list of epidemics in Europe since 1860 comprises "about 160 epidemics, with 3044 cases, and 17 places where no number is given." Allowing, according to Meissner three cases each for

places where no number is given, the whole numbers will reach 3095, with 231 deaths, making a total of about 150 epidemics, 3800 cases, 281 deaths, and 700 cases and 50 deaths not in the list. See p. 87, Glazier.

A similar record as to the United States up to 1880, inclusive, gives 26 localized epidemics, with 77 cases (a few cases number not known) and 26 deaths. While neither reckoning shows absolutely the relative degree of the disease, yet it does indicate that we are to look abroad for its greatest prevalence. But, as it appears "that only one-fourth of those eating the flesh from a trichinosed hog are affected with trichinosis," and, as Pagenstecher says, "five per cent. of the cadavers in Berlin hospitals contain trichinæ," and as the disease is well proven to exist here, we cannot be too diligent in preventing it from becoming as prevalent here as it is in foreign countries. All the more because of our immense production, and of the demands of home and foreign health. The last census gives the aggregate of swine at 37,396,621, which includes only those kept by persons having land.

I am aware that large statements come to us (such as one, not long since, from Lyons, in France, and another from Boston, in the United States), which would indicate a much greater prevalence of trichinosed pork than is generally supposed.

This might occur from the observer having lighted upon a special run of the disease.

But I have also learned that the observation of microscopists, like those of clinicians, are not always correct; that their experiments, like our experience, although honest, may have sources of error, and that the cautions given by Surgeon Sternberg, on page 5 of his excellent preface to his "Translation of Magnin's Brochure on the Bacteria," are to be observed as closely as what is seen under the microscope.

The French decrees of February last, the action of the English government, and that of some States on the continent, led our own government to an investigation which needs to be more exact and extended, but which, nevertheless, shows that the prohibition of importation was not well advised.

While there is still a kind of restrictive legislation which is

unwise, yet we believe there is more of a disposition to get at the precise facts in a more authentic way, and to regulate commerce on the basis thereof. In this connection I submit a brief extract from a debate in the House of Lords, on May 16, of the present year, a summary in the New York *Times* of September 14, 1881, based on the testimony of Consul Mason, of Basle, to our government, and a communication from Dr. Lyman, Veterinarian of the United States Department of Agriculture, of date October 29, 1881, in answer to certain questions I had asked.

(*a*). In the House of Lords, May 16, of the present year, Lord Stanley, of Alderly, asked Her Majesty's Government whether they would prohibit the importations (alluding to pork), of which a large proportion were infected with trichinæ and bacilli; also of such oleomargerine or butterine as contained the grease of pigs suffering from the new disease of swine at Chicago, and the fat of horses infected with disease or such as was adulterated with soapstone. The Marquis of Huntley said he could assure the noble lord that there was no established case of American hams being infected with trichinæ, and there had been one case only by infection by bacilli. (See Fleming *Vet. Journal*, June, 1881, p. 462).

Consul Mason writes from Basle that abundant and unmistakable evidence shows that the panic about American meats has begun to decline. From the first it was artificially created, mainly by such official action as the French decree in February prohibiting importation of American pork, and a published document from the Minister of the Interior in Neufchatel, asserting that the microscope had shown more than half of American hams and canned meats to be infected. That canton takes most of its 150,000,000f. of exports from this country in the form of meats, and the trade has been almost destroyed for the present, although no case of trichinosis has ever been reported there. But as consumers, who have taken no part in the scare, have found themselves suffering from advanced prices, they have begun to complain, and as the sales of domestic meats, in the difficulty of discrimination, have been affected, dealers who thought they saw "protection" in the scare have joined the demand for removal of the prohibition. The leading meat importer in Basle has

for several years subjected all his meats, from whatever country, to microscopic examination by the official city inspector; the occasional pieces containing traces of defunct trichinæ were saved, and were experimentally fed to hogs, chickens, cats and dogs, but at the end of six months no trace of disease could be found in the flesh of these animals. The "syndicate of lard and salted meats" of Bordeaux made an elaborate protest against the French decree, saying that in twenty-five years only a single case of the disease had occurred in France, and the character of that was disputed; that Germany has excluded only chopped meat for sausages; that there is no prohibition in Europe, except in Italy, and perhaps in Spain; that no decrees can keep out American meats, although disguise may be forced; and that it is supreme folly to injure the people of France for the sake of an imaginary danger. The Swiss *Journal de Geneve* remarks that the Ministers in Paris, London and Brussels have been compelled to acknowledge that not a case of trichinosis from American meats has ever been authoritatively shown to have occurred in Belgium, France or England, and it ascribes the scare to the jealousy of European meat growers and the desire of speculators in America to break the pork market, saying that a single Chicago firm is reported to have cleared 30,000,000 francs in one year by a skillful combination. Mr. Mason thinks the foreign trade in salted meats can never be fully restored without establishing in this country a system of official inspection which shall carry with it the weight of State or Federal authority. German municipal experience, notably in Berlin, has shown that a capable inspector can examine several hundred pieces per day, and he thinks young men of ordinary education and good eyesight could be trained in a fortnight, by a competent microscopist, to do this work, and that the cost need not exceed three cents per hog. Until this or some equivalent step is taken, the one per cent. of diseased hogs admitted to exist here will be a serious obstacle to the export trade in meats, for European meats are officially inspected, and to be able to say that American are not, is to give opponents of our trade the power to keep up a prejudice. An official report in review of the whole subject is needed, showing by statistics the extent of the hog product in this country, the

immunity of our people from disease, how many hogs die of cholera and transportation accidents, and what becomes of them, and the annual values of land and corn in the pork-growing States. It is often published, and is more or less believed, that the comparative cheapness of our meats abroad is because the bad or questionable qualities are exported. This can be combated by showing that the cost of growing the best quality here permits exporting it at the prices it bears abroad. Such a report should be published under an official seal, which is, of all things, the most authoritative with a European, and should be distributed abroad.

DEPARTMENT OF AGRICULTURE,
WASHINGTON, D. C., October 29, 1881.

E. M. Hunt, M.D., Secretary, etc., State Board of Health, Trenton, N. J.,

MY DEAR DOCTOR:—Your letter of inquiry of the 22d inst. is duly received. I will answer your questions as fully as I am able to do so. You ask:

1. State the comparative number of cases of trichinæ that have been identified as to their origin, viz.: how many American, English, French, Continental?

If this refers, as I suppose it does, to disease in humans, I am unable to answer.

2. How many live hogs are claimed to have come from America with trichinæ?

From the annual report of the English Veterinary Department for 1879 I copy the following:

"The slaughter of large numbers of American swine at the port of landing afforded opportunity of obtaining specimens of flesh for examination, with the view to ascertain what proportion of the animals were infected with trichinæ. The inspectors of the Veterinary Department examined two hundred and seventy-nine separate portions of swine's flesh which were sent from Liverpool, and detected living trichinæ in three specimens. * * * No doubt, therefore, existed as to the dangerous character of American pork, and a consultation on the subject took place with the medical officers of the Local Government Board. The matter was also discussed in the House of Commons; but

it was not deemed expedient to prohibit the introduction of American pork into this country, for the reason that such a measure would have damaged the trade without producing any satisfactory results; * * * besides which, trichinosis among swine is known to exist in Germany, and it probably exists in other exporting countries, so that nothing short of total prohibition of swine flesh in all forms, from all sources, would have been effectual. The possibility of our own swine being to some extent infected with trichinæ has been suggested; the result, however, of many examinations has, up to this time, been negative."

I do not know that Germany or France has even examined for this disease in live hogs.

3. How much shipped pork has been identified with it?

To foreign countries, Germany reports each year some, if I remember rightly, three or four thousand "pieces" of American pork. Where they get them, what a piece is, or what percentage of pieces examined and found diseased, I have never heard of their saying. I do not know that they have made any publicly, neither do I know that other foreign countries have done any more than to say that they found, upon examination, that trichinæ existed in American pork, as they had seen it arriving in their countries.

4. Have Western hogs in any one section been more affected?

It has no such favorite locality that we know of, although this will be a good ground for future investigation.

5. Are trichinæ found in the fat, as in cold tried lard?

I have until now thought not. Professor Taylor, of this department (microscopist), tells me that in the journal of the Microscopical Association he has recently seen that they have been found in fat. I should rather see than believe without so doing. A veterinarian, of New England, informed me on April 14 last, that he had examined portions from 2,701 Western hogs, obtained in Boston, 154 of which he found infected—*i. e.*, one case to each 17 54–100 hogs examined. He tells me that he will make a statement to this Savannah meeting, that he has examined portions of 8,773 Western animals, and has found one case to every twenty five animals. You will see that there is a great difference between his first (April) examination and this

one, and his result is so greatly different from the English examination of our hogs, above mentioned, and so much above any known percentage among animals of every other country, that I cannot but entertain doubts of the value of his examination.

* * * * * * * *

While such facts are to be borne in mind, the gravity of the disease, its cosmopolitan character, and the interest both of health, life and trade, require that, under the head and authority of the United States government, there should be such testing of facts as will be fully reliable, and not depend on single observers, and that some plan may be devised to secure both to animals and mankind immunity from this direful invasion.

The latest and most graphic outline of the disease is given incidentally in a scientific address by the veteran naturalist, Richard Owen, who gave it the name trichinæ. It is worthy of transcription: "The finding of the wormlet within the cysticule in 1835 (proceedings of the Zoölogical Society of London, February 21, 1835; also Transactions, ibid. 4 to Vol. I), and the more important discovery of Dr. Zenker, of Dresden, in 1860, of its causative relations to a direful disease, have demonstrated that the several groups of symptoms to which I have referred under the respective technical denominations applied to their groups, may, one and all, be due to the deglutition of trichinæ spiralis."

It is thus all the more serious, because the symptoms simulate so many diseases, such as dyspepsia, common diarrhœa, dysentery, peritonitis, pneumonia, rheumatism, gout, typhoid fever and endocarditis. The larvæ of this wormlet in the flesh of the animal it infested, being introduced as food into the human stomach, finds in that warm cavity an environment of mucochymous nutriment, in which it rapidly matures, acquires activities, and develops its generative organs and products. If permitted to pass into the intestinal canal, it there excludes its progeny, which also rapidly acquire their full size and procreative faculty. But the grave symptoms of their presence are due to the curious migratory instincts of the young trichinæ, which impels them to make their escape by perforating the tunic of the

intestines, in the course of which operation the majority find their way into the venous capillaries. Such as wriggle through the meshes of the vascular network, bore their way through the serous tunic of the gut and pass into the abdominal cavity, whereupon the peritonitic are complicated with the enteritic symptoms. But the majority are carried to the right side of the heart, and thence by the pulmonary artery to the lungs. Treading then the capillaries continuous with the commencement of the pulmonary veins, the trichinæ are brought back to the heart. As many as may have burrowed into the vascular walls of the right or left ventricle, or may have got into the cavity of the pericardium, give rise to the symptoms summed up in the terms of art already cited.

Trichinæ, which may have strayed into the tissue of the lungs, or which may have wriggled through the pulmonic serous covering, and from the pleural cavity may have invaded the serous membrane on their way to the intercostal muscles, add the pleuritic and pulmonic to the pericarditic symptoms. The natural affinity or attraction of the trichinæ is to myonine or the muscular tissue. There their wanderings come to an end. They are conveyed so soon and so rapidly by branches of the carotids to the muscles of the larynx that the trichinæ are there found most constantly and abundantly, but usually so vast is their number that they are carried to the voluntary muscles of the entire body. In the exceedingly delicate connective tissue of the ultimate bundles of the ultimate fibrils, the young trichinæ coil themselves up to their larval repose, exciting no other organic change than an overflow of plasma, which condenses with the contiguous cellulosity and becomes molded into the shape of an elliptic case, in which may be seen under the microscopic compressorium one or more of the tiny worms disposed in two or more circular coils.

An ounce of hog's muscle has been found to contain 85,000 trichinæ, while Thudicum estimated 40,000,000 in the body of a German who died in the London Hospital, and Cobbold, who reviewed the calculation, thought this below the number. He calculated in the flesh of a hog, that had caused an epidemic in England, 80,000,000. Thus far the record of cases in Germany

and of endemics thereof has been ahead of that of any other country.

The number of cases recorded by Glazier for the United States, from 1864 to 1880, is seventy-eight, while post-mortems have afforded proof of their existence many times.

We believe there is nothing to point to this disease as more prevalent in the United States than in other countries. Yet it is prevalent enough, and its occurrence possible and serious enough to demand the closest attention of all those whose effort it is to prevent disease.

The immense swine production and pork traffic of this country, of course, makes the aggregate number of cases larger, and at the same time, enforces the interest and the duty of leaving no measures that are expedient untried to limit or destroy the disease. Not because it is an American parasite, for Heller (Ziemssen Enc. III., p. 628) says that trichinæ have been found in all countries where search has been made for them, and Pagenstetcher says: "They are cosmopolitan with man, hogs, rats and mice."

As it is not like a disease spread through the air, and does not rapidly pass from one animal to another, save where there is a source of production, there are great encouragements for an attempt to eradicate the disease. There is some reason to believe that rats frequenting hog pens are often its conveyancers, and that we need some "Pied Piper of Hamelin" to drive them all into the sea. Cobbold says infection must be due to the facilities for swallowing garbage, especially dead rats. It is an established fact of natural history that hogs are not by nature filthy in their habits or in their choice of food. If mankind thrust upon them all sorts of improper food, all the indignation must not be projected against the brute. A treatise on the hygienic management of swine is in order, especially as they have become subjected to such invasions.

All serious diseases which are either directly transmissable to man, or which by the diseased or imperfect meat and milk they put on the market, or by the actual loss of food su occasion, must attract the attention of all sanitarians.

And as our foreign trade is being so much affected, both in the interests of health and of commerce, we should join in consultation and advice with those who have to guard our commercial and national interests.

We may call it prejudice or retaliation, and to some extent correct the distorted views of some of our British and continental friends, but so long as there is a basis of truth it behooves us, both in our home and foreign interests, to do all that is intelligent and practicable in stamping out or limiting these diseases.

For this we have a few suggestions to make:

1. There is a need of accurate study into causes as well as into methods of limitation. Our government has done some good work in the way of investigation, and the present distinguished head of the Agricultural Department, Dr. Loring, is by profession, agricultural knowledge and executive experience, well fitted to do more.

There are some veterinarians that are at work, but the number of these is small, and it is difficult to find enough others who are capable.

We feel that medical men and others of this association should feel these investigations to be as worthy of their labor as those directed to some human diseases. The time has come when medical and sanitary experts should recognize the study of the comparative plagues as a part of their work and devote the closest study thereto.

2. Some form of direct oversight should be exercised in every State over the communicable disease of animals. There is no more economical outlay than that which guards our milk and meat supply. An authority in every State to oversee the work and to circulate information among farmers and stock raisers, to obtain knowledge through local township committees, supervisors or health boards of special outbreaks and to secure from assessors exact statements each year of all deaths and known causes of deaths of animals would be of essential service. Thus infected districts would soon be singled out and the disease ere long eradicated. In Germany microscopical examination of pork has been made compulsory.

3. Public abattoirs and inspection thereat should be encouraged.

4. All live stock sent out of the country should be inspected at the point of final shipment by a government veterinary inspector.

5. Pork packing and smoking establishments should guarantee their methods, and be subject to penalty if the meats furnished by them are proven to have caused disease. Trade marks and brands are easily made, and severe penalties to producers for any meat that is proved to have caused sickness is one of the best precautions. It will then be the interest of large establishments to protect themselves by sampling lots with the microscope and by other expert examinations.

6. A system of inspection is desirable; but we do not wholly rely upon it, as being exceedingly expensive, and as not alone accomplishing as much as when joined with other methods.

7. All wholesale lots of chopped meats or sausage or of potted meats should be certified by competent meat inspectors.

8. It should be known that thorough salting and cooking remove all risks from animal parasites. Virchow, in treating of this disease, expresses his regret that the old forms of curing and smoking have had so many substitutes.

9. Careful inquiries should be made as to the presence of parasites in fats, and as to the fats of diseased meats, lest lard and oleomargerine, etc., may be so prepared as not to be subjected to proper heat, and our risks be increased in this direction.

In view, therefore, of the vast interests involved to health, not less than to commerce, we trust this association will direct still more careful attention to the communicable diseases of animals, and seek to find their causes, and arrest their courses, since, be it man or beast, it is a common concern in a common welfare.

We append the approximate summary of the last census of all live stock in the States and Territories, as found on farms or with those owning land. The aggregate shows a yearly product of one hundred million, if we estimate all, used as food:

FOOD STOCK IN THE UNITED STATES.

STATES AND TERRITORIES.	Working Oxen.	Milch Cows.	Other Cattle.	Sheep.	Swine.
Alabama	75,534	271,443	404,213	521,267	1,252,462
Arizona	984	9,156	34,843	112,107	3,819
Arkansas	25,444	249,407	433,392	375,795	1,565,098
California	2,288	210,078	451,941	5,644,341	603,339
Colorado	8,179	28,770	315,989	994,844	7,656
Connecticut	28,399	116,198	92,121	104,592	63,662
Dakota	11,418	40,572	88,825	47,116	63,394
Delaware	5,818	27,284	29,450	40,044	48,186
District of Columbia	4	1,292	271	.....	1,032
Florida	16,141	30,359	414,869	80,169	287,051
Georgia	50,026	315,073	544,812	752,490	1,471,003
Idaho	737	12,838	71,292	39,246	14,178
Illinois	3,346	865,913	1,515,093	1,544,728	5,170,118
Indiana	3,970	504,944	865,136	1,614,073	3,186,413
Iowa	2,504	854,097	1,754,341	669,510	6,034,316
Kansas	16,789	418,333	1,015,935	733,276	1,787,969
Kentucky	36,076	301,882	494,743	1,678,515	2,225,225
Louisiana	41,729	146,454	282,418	203,177	633,489
Maine	43,049	150,845	140,527	944,856	74,269
Maryland	22,246	122,907	117,387	306,969	335,408
Massachusetts	14,571	150,506	96,045	109,796	80,123
Michigan	39,493	384,573	467,060	3,065,533	964,071
Missouri	9,020	661,405	1,410,487	2,193,006	4,573,123
Montana	936	11,308	160,143	211,225	10,278
Nebraska	7,234	161,609	613,129	285,935	1,241,724
Nevada	765	13,319	158,137	193,894	9,080
New Jersey	2,022	152,078	69,786	237,368	219,069
New York	39,633	1,437,855	852,283	2,718,093	751,916
North Carolina	50,188	232,133	375,105	690,894	1,453,541
Tennessee	27,337	303,832	444,736	1,079,743	2,158,169
Virginia	54,709	243,061	388,414	823,776	956,451
Wisconsin	28,762	478,374	622,005	1,921,047	1,128,239
	671,351	8,897,917	14,811,928	30,027,415	37,369,621

RECAPITULATION.

Oxen	671,351
Milch Cows	8,897,917
Other Cattle	14,811,928
Sheep	30,027,415
Swine	37, 396,621
	91,805,232

—*Journal of Comp. Med. and Surgery.*

REMARKS ON THE TREATMENT OF GUNSHOT WOUNDS OF THE ABDOMEN IN RELATION TO MODERN PERITONEAL SURGERY.

By J. MARION SIMS, M. D., LL.D., etc.

Occasionally wounds of the abdomen above the brim of the pelvis recover; but it is always when there is a chance for drainage. Dr. Pallen saw a Confederate soldier recover, where a large part of the abdominal parietes were blown off by a bursting shell. The wound was immense, and diagonally across the abdomen. The bowels fell on the ground, but were not wounded.

They were washed clean, returned to their proper place, and the wound was closed as well as possible with strong coarse thread, leaving an open space six inches long and two inches wide, through which the intestines could be seen. The were retained *in situ* by compress and bandage, and the man eventually recovered without a single drawback. He recovered because the intestines were not injured, and because there was drainage. This was a case in which we might have supposed there was danger of peritonitis; but peritonitis and free drainage are antagonistic.

Dr. Newall, of New Brunswick, New Jersey, reports to me the following interesting case: A large man, with a "full abdomen," shot himself accidentally with a shot-gun in 1847. The charge entered the abdomen an inch below the sternum, and to the left of the median line. Introducing the finger, Dr. Newell plainly felt the left lobe of the liver and the inner wall of the abdomen. The next day twenty-nine shot passed the bowels. Three shot made their exit one inch and a half above the crest of the ilium, and three and a half inches from the spine. "An incision was made here into the cavity of the abdomen, and I removed the gun-wad, composed of tow, paper, shot, a printer's type and a piece of the man's vest—in all, sufficient to fill a tumbler half-full. The patient was kept under the influence of opium for several days. He recovered completely, and is now living." In this case Dr. Newall did, thirty-four years ago, what I now advise to be done in all cases of gun-shot wounds of the abdominal cavity. His patient was saved by the removal of foreign bodies, and by an opening in the iliac region, which permitted free drainage.

Having now brought forward all the facts observed by myself and by personal friends, let us turn to the records of the American Civil War for further facts illustrating this important question.

1. *Wounds of the Stomach.*—There were sixty-four shot wounds of the stomach, more or less complicated with wounds of neighboring parts. There was but one well authenticated case of recovery. Other reported cases of recovery were carefully analyzed by Otis, and pronounced wholly unreliable.

There were nine cases of bayonet wounds penetrating the peritoneal cavity without lesion of viscera. Six terminated favor-

ably. Seven had traumatic peritonitis. The diagnoses were not clear in every case.

There were four fatal punctured or incised wounds of the stomach. Five fatal shot wounds are reported as having survived seven, eight and nine days, and one forty days. The length of time that these survived indicates clearly how different the result might have been in some of them, if prompt measures had been taken for exploring the seat and nature of the wound, and resorting to gastrorrhaphy, the only rational treatment in such cases. There was not a single case of gastrorraphy during the whole war. This is explained by the fact that the stomach does not prolapse through an ordinary bullet wound; and surgeons did not then dare to enlarge such wounds to investigate the nature and extent of internal injuries.

There were three cases of secondary fistulæ, which terminated fatally. One lived four weeks, another seven weeks, and the third eighty days. Timely interference and gastrorrhaphy would almost certainly have saved all of them.

Considering the facility and comparative safety with which gastric fistulæ are now established by surgical means, it is a little surprising that (according to Otis) we have the record of but two cases which have survived shot wounds of the stomach for any length of time. The first "is that of Maillot, wounded in Möllendorf's repulse of the French at Kaiserslautern, in May, 1794. In this little known, but authentic case, recorded by Baron Percy, the fistulæ gradually contracted, and ultimately closed." The other is the well known case of Alexis St. Martin, made famous by Beaumont, who, nearly fifty years ago (1833) published an account of the digestibility of various article of diet as observed in the stomach of St. Martin. Beaumont states that St. Martin, a Canadian, of French parentage, was about eighteen years old when wounded (June 6, 1822) at Fort Mackinau, where Dr. Beaumont was stationed as surgeon to the post. As St. Martin died only a few months ago, he survived injury about fifty-nine years.

Dr. Otis sums up wounds of the stomach in the following words: There were "four fatal punctured or incised wounds; one incontestable recovery from a shot perforation; a few recov-

eries from shot wounds in the gastric region, in which the diagnoses were not determined unequivocally; and nearly sixty fatal cases of more or less complicated shot-wounds of the stomach."

The records of military surgery (according to Otis), from its earliest period to the present time, furnish but six or seven well-authenticated cases of recovery from shot-wounds of the stomach, with or without fistula. To this list must now be added another example of recovery from undoubted shot-wound of the stomach. It is the case of the distinguished gynæcologist, Dr. R. Beverly Cole, of San Francisco. I have just received a letter from him, dated London, January 17, 1882, detailing the following particulars: Dr. Beverly Cole, at the age of twenty five, resided in San Francisco, where he had suffered from repeated attacks of intermittent fever. When just recovering from one of these, he left his house, on June 3, 1854, without taking breakfast; his stomach was therefore empty. Whilst in the act of packing his trunk, preparatory to making a visit to the country, a Colt's six-inch revolver (old pattern) fell from his inside breast coat pocket, the body being bent over the trunk at the time, and the hammer of the pistol striking the edge of the trunk as it fell, the cap was exploded, and the ball entered the breast—the muzzle not being more than eight inches from the body. He did not fall, but, raising himself up, he tore open his vest and shirt, and saw that he was wounded. Syncope occurring, a friend caught and laid him on a sofa near by. When consciousness returned, he found himself surrounded by a number of his medical friends, among whom were Drs. C. S. Tripler and H. S. Hewitt, of the United States army, and Drs. Valentine Mott, Jr., A. B. Stout and Charles Bertody. He was totally blind, but recognized them all by their voices. He heard Dr. Tripler say: "Never mind the ball; it can be sought for at any future time. We must first bring about reaction." Soon after this he was suddenly seized with an indescribable pressure in the rectum, and a desire to defæcate. Morphia was administered, sinapisms were applied to the extremities, and ammonia was given in very minute quantities—minute, for fear of its escaping through the gastric wound into the peritoneal cavity. As reaction came on, the sensation in the rectum increased till he vomited nearly a wash-hand bowlful of blood,

University of Michigan

black and partially coagulated. It was estimated by the attending physicians to be from a quart to a half-gallon, or more. This gave some relief. But the rectal pain and tenesmus were not completely relieved till he was brought fully under the influence of morphia. As he lay on his back, his clothing was all cut away without turning him on either side, and he was then placed in bed. The collapse was very complete, and several hours elapsed before reaction was fully established. During all this time he could not see; but from the conversation of the surgeons and from the frequency with which they examined the cardiac region, he inferred that death was imminent. The sinapisms were forgotten, and were not removed for four or five hours, and they produced sloughing ulcers, which were nearly twelve months in healing. When reaction was fully established, Dr. Tripler passed the end of the little finger along the track of the ball, through the conjoined cartilages of the seventh and eighth ribs—an inch and a half to the left of the median line of the ensiform cartilage. He then passed a probe along it into the stomach. The lodgment of the ball was not discovered for two weeks or more later. It was then found between the eleventh and twelfth ribs on the back, two inches to the left of the median line. This showed that the course of the ball was directly through the body—the difference between the parallels of entrance and exit being due to the difference between the bent and the erect posture.

For three weeks he was nourished by the rectum. Beef-tea was thus given every three hours; at first one ounce, then two, then three, and finally four ounces. During this time a small quantity of beef tea was given by the mouth, but it produced such severe pain, as it entered the stomach, that it was not soon repeated. Small lumps of ice were allowed to quench the thirst produced by the morphia, which was given in half-grain doses three or four times a day, or whenever needed. On the twelfth day the bowels were moved by enema. On the twenty-first day he was removed to his own home. He then began to suffer from severe paroxysms of pain in the back, which were so intense as to obstruct respiration. They continued without abatement for three weeks. Dr. Tripler then removed the ball, and they ceased. He was confined to bed six weeks. When he got up it

was discovered that the left shoulder was lower than the right, the result of a constrained position while in bed; and there was a dragging sensation in the gastric region, not only disagreeable, but quite painful, as if the stomach had formed unnatural adhesions. On account of these disabilities, he was compelled to go on crutches for two years before his body attained its natural erect manner of carriage.

The posterior wound closed in a few days after the removal of the ball; but the anterior wound did not close for four years, which was doubtless due to the injury of the cartilages, which are always tardy in reparation. For many years an ordinarily hearty meal (in consequence of adhesions between the stomach and contiguous parts) produced a dragging, uneasy sensation, which rendered life very uncomfortable.

Recovery was eventually complete; and no one now would suspect that he had ever been the subject of such a serious accident. A peculiar feature of the case was total loss of vision for three days, during which time he could not distinguish daylight. There can be no doubt that the ball in this case perforated the stomach. The large quantity of blood vomited soon after the wounding establishes the diagnosis beyond question. From the point of entrance and direction of the ball, it must have passed through the stomach, below the lesser curvature. As the ball was very small, the wound of the stomach was likewise very small; hence there was less probability of gastric effusion than if the ball had been larger. But recovery was chiefly due to the fact that the stomach was quite empty at the time of the accident. If it had been even partially full there would have been effusion into the peritoneal cavity, followed by certain death.

The history of Dr. Beverly Cole's case was published in the *Detroit Medical Journal* in 1855 or 1856, by Dr. C. S. Tripler, United States Army. But as Dr. Otis insinuated, in a note to the *Surgical History of the War* (Part II., "Surgery"), that the case was not incontestably one of the stomach, I place it on record here that others may judge for themselves.

2. *Wounds of Small Intestines.*—Of about six hundred and fifty cases of penetrating wounds of the abdomen during the war, fifty were of the small intestines, eighty-nine of the large intes-

tines, and over five hundred in which the location of the wound was not discriminated, or was complicated with other lesions. Very few sword or bayonet wounds of the abdomen came under treatment, but a number of such injuries were observed among the slain on the field of battle. Wounds of the small intestines are more frequent than those of other portions of the alimentary canal, and are attended with higher mortality. They are more exposed to injury, being less protected by bony structure than other viscera. The ileum is most exposed, jejunum less, and the duodenum still less. Wounds of this portion of the canal are regarded as almost necessarily fatal. Of shot wounds of the small intestines during the war, Otis says: "It may still be doubted if an incontestable instance of recovery was observed." There were five cases of wounds of the duodenum, all complicated with wounds of other organs. They all died. One survived eight days; another twenty-four days. If the external wound had been sufficiently enlarged in time, the wounded portions might have been exsected, and the ends sutured, with chance of recovery.

3. *Wounds of Large Intestines.*—Injuries of this group are less fatal than wounds of small intestines. There were a few instances of recovery from shot wounds of the transverse colon; many after perforation of the cæcum and ascending portion of the bowel, and a still larger number in wounds of the sigmoid flexure and contiguous part of the descending colon. Many of these were complicated with injuries of the innominata. Nearly all resulted in fæcal fistulæ, which usually closed after a while without surgical interference. There were, in all, fifty-nine recoveries out of eighty-nine shot wounds of the cæcal and sigmoid extremities of the large intestine. Fæcal fistulæ persisted in nine, and were closed in fifty; seventeen within a month, twenty-eight within a year, and five at periods from one to five years. Ten per cent. of all slain in battle die of wounds of the abdomen, and from three to four per cent. of the wounded who come under treatment are wounded in the abdomen.

4. *Wounds of the Bladder.*—Baron Larrey was the first to show that gun-shot wounds of the bladder were less dangerous than those made by puncture or incision; because the tissues are

so crushed by the missile that eschars are produced, which protect the connective tissues from urinary infiltration. There was no case of punctured, incised or lacerated wound of the bladder in our war. Of one hundred and eighty-three shot wounds of the bladder, eighty-seven (47.5 per cent.) survived. A large majority of these suffered from grave disabilities, and many from distressing infirmities, a few of them dying after years of suffering; several recovered, with permanent urinary fistulæ. Some had recto-vesical fistulæ, which closed early in a few, and later in others. However, it is rare to find the functions of the bladder perfectly restored after shot injuries. Shot wounds of the bladder are often complicated by the presence of foreign substances in it—such as bullet, bone or other material—which serve as nuclei for calculous deposits. There were twenty-one cystotomies for the removal of such formations. Many cases died from infiltration of urine into the cellular tissue, and many from extravasation of urine into the peritoneal cavity. Cystorraphy, recommended by Legouest, was not practiced.

The teachings of Vincent, of Lyons, and of Fischer, of Buda-Pesth, at the late International Medical Congress, alluded to in early part of this paper, prove that we may now safely undertake cystorrhaphy in all wounds of the bladder. Abdominal section, and cystorrhaphy, and clearing out thoroughly the peritoneal cavity, are the only means of safety in shot or other wounds of the bladder, where there is urinary extravasation into the peritoneum.

5. *Shot Wounds of the Rectum.*—One hundred and three shot-wounds of the rectum were reported, of which forty-four (or 42.7 per cent.) resulted fatally. Thirty-four of the cases, of which four were fatal, were complicated with wounds of the bladder. Fæcal fistulæ, after shot perforation of the rectum, were not uncommon, and were more persistent than cæcal or sigmoid fistulæ. Shot wounds of the rectum are not so dangerous as those of the upper bowels, but are about on a par with wounds of the cæcal and sigmoid ends of the colon. Hæmorrhage was not a frequent complication of shot-wounds of the rectum.—*British Medical Journal.*

A STUDY OF THE PERIODS OF INCUBATION OF THE COMMUNICABLE DISEASES.* BY BENJAMIN WARD RICHARDSON, M.D., F.R.C.P., F.R.S.

The points I propose for discussion are the following:

1. The precise application of the term incubation, and to what diseases it should be applied?

2. The amount of absolute knowledge of the period of incubation of the more common communicable diseases?

3. The differences of opinion on this subject; do they depend on fault of observation, or on the circumstance that there are, in the same diseases, varying periods of incubation, the variations being under no, as yet, defined rule?

4. If it be seen that there are differences of periods in the same diseases, upon what may such differences depend?

5. The practical lessons which arise from the facts we at present possess, and the extent to which our knowledge may be rendered available in regard to direction in the prevention and treatment of disease?

The period in the course of a disease to which we should apply the term incubation, and the diseases to which we should strictly apply the term, are the two first points deserving consideration.

At the outset this may seem to be a subject easy enough to settle, but when the mind comes down to it, it is not at all easy. We simplify somewhat by saying that the term is to be limited to those instances in which, after a certain specific poisonous particle has been taken into a living body, certain indications of the action of that specific poisonous matter has been manifested. We say that the period between the introduction of the poisonous particle, and the appearance of manifestation of action, is the period of incubation, but we fail to be unanimous on the question —What is the accepted first sign of such manifestation? Is that first sign any sign, or one particular sign? Is it a local sign, or is it a general or systemic sign? If, again, it be a systemic sign, is it one systemic sign, or two, or more, or one of many?

Let me give a small illustration of what I mean. The older

* Read before the Association of Medical Officers of Health, Friday, May 20th, 1881.

pracitioners, when they inoculated small-pox, ruled that the orange-colored eruption around the needle-puncture came on from the fourth to the fifth day, followed by a distinct vesicular rising, with pain in the axilla, on the seventh day, and systemic pain—pain in the back and limbs, and head—with rigor and fever on the ninth or tenth day, and appearance of a general eruption on the eleventh day. What here was the period of incubation? Was it from the time of the insertion to the occurence of pain in the axilla, or to the rigor with pain in the back and the limbs, or to the general eruption? In vaccinia in these days, we meet with the question—Is the appearance of the local eruption at the point of puncture, and the formation of the vesicle, to be counted as the end of the period of incubation; or is the after fever, or other systemic symptom, to be taken as the close of the period? I have known a case of vaccinia in which there has been no indication of effect at all, except the local manifestation. In such a case am I to say that the local change is sufficient when it is vesicular, when it is pustular, when it is maturative? Or am I, in such a case, to say there has been no period of incubation at all; that the whole process is abortive, and that the vaccinated is therefore either insusceptible or unprotected? I take this illustration because it is so very definite, because we know that the poisonous particle was inserted at a certain time, and can therefore be traced from that time into effect. When we come to the question of reception of the poison by a means less definite, we have more reason than ever for some decided rule. In scarlet fever what shall guide us? Shall it be the actual fact of a change in temperature? If so, shall it be preliminary depression of temperature? Or shall it be the first elevation of temperature that follows depression? Or, shall it be pain, or shall it be eruption? Until we can agree on these points, there can never be accuracy in our records.

I have studied very closely for two years past the various sides which this questior presents, and by exclusion I have, for the moment, come to an opinion I am about with submission to offer to you. I would exclude all mere local manifestations, because I see that they may be presented and may not indicate that the disease has been incubated, in the full sense of that term. I ex-

clude pain, local or general, because that might be due to other causes than the action of the poisonous material, or if it were due to that it is too much of a subjective symptom to be reliable. I exclude eruption because it may not be present, although the disease may be incubated, or it may be looked over, or it may be transient and therefore not detected. I exclude mere rise of temperature because that alone might not be detected at its origin, but might have been long present before it was detected. But I accept as the safest of all the phenomena indicating that the period of incubation is declared, that sudden vibration between cold and heat, which we will call chill or rigor. This is at once a subjective and an objective phenomenon. The observer sees it in the pallor and coldness and shivering, and reactive fever of the affected. The subject of the attack is easily able to define its precise period of commencement and its course. Moreover, of all the phenomena it is the most certain. In my experience I never knew a case of a communicable disease that was not preceded by chill. In cholera, in which it might perhaps not be expected by those who have not seen the disease, according to my experience in the two epidemics I have witnessed, it was always present. "The chill came on," at such a time, was nearly the invariable sentence which fell from the lips of the stricken who were able to describe their own sufferings. There is moreover, a physiological reason for accepting chill or rigor as the indication that the poisonous particle has taken effect. The phenomenon is the natural indication that the disunion of normal action between the nervous and the vascular systems has taken place. It is like to the convulsive tremor which occurs when at a precise point during loss of blood the break between blood supply and nervous supply is interrupted. It is still more like the tremor which is invariably produced when an alkaloidal poison, like nicotine, shows its diffusion through the body, and, as we would say, declares that the period of its introduction is finished. If we had an alkaloid like nicotine which would increase in the body and by its increase diffuse up to the pitch of physiological action, we should rule that the incubation was finished when the tremor declared it. Granted then, that a disease runs a definable course, I should take the first rigor or chill as the first sign of the disease,

and should accept the intervening period between the introduction of the cause and the developement of the chill, as the true period of incubation.

In the next place we may study under the present head the diseases to which the term period of incubation may be properly applied. On this point there is nothing strictly definite amongst the members of the profession. We are probably pretty unanimous in assuming a stage of incubation to the following common affections, 25 in number:—

1. Plague.
2. Cholera.
3. Malignant pustule.
4. Scarlet fever.
5. Diphtheria and croup.
6. Influenza.
7. Pertussis.
8. Glanders.
9. Erysipelas.
10. Farcy.
11. Grease.
12. Dengue.
13. Gonorrhœa.
14. Relapsing fever.
15. Variola.
16. Vaccinia.
17. Varicella.
18. Measles.
19. Rotheln.
20. Typhus.
21. Typhoid.
22. Mumps.
23. Malarial fever.
24. Syphilis.
25. Hydrophobia.

But there are some others on which we should not be so unanimous, as for instance—

Catarrh.
Puerperal fever.
Pyæmia.
Hospital gangrene.
Sloughing phagedæna.
Phagedæna.
Remittent fever.
Intermittent fever.
Choleraic diarhœa.
Cerebro-spinal fever.
Carbuncle.

These last-named diseases all require to be more carefully observed in respect to period of incubation and first indication of defined symptoms before they can be proved to have a stage of incubation at all, and before, therefore, our knowledge can be said to be perfect in respect to them.

I would now venture to indicate what are the nearest approaches to the periods of incubation in the different diseases which present an undoubted stage of incubation. In preparing the chapters of a work on preventive medicine, I thought it worth the trouble to collate the views of all our best authorities on the subject, old and modern, and to bring them into a condensed form, adding thereto what I had myself observed from natural facts.

Without loss of time I will state the results in brief form, but I must not let the opportunity pass of expressing how deeply we are indebted to Dr. Squire for the insight he has shown in dividing the communicable diseases according to their periods of incubation. Following closely his admirable plan, but somewhat extending it, I divide the diseases attended with stages of incubation into five groups:—

a. Shortest.—Shortest Stage of Incubation—1 to 4 days.—Malignant cholera. Malignant pustule. Plague. Catarrh. Dissection wound diseases.

b. Short—Second Short Period—2 to 6 days.—Scarlet fever. Rosalia idiopathica. Diphtheria. Dengue. Erysipelas. Yellow fever. Pyæmia. Influenza. Pertussis. Glanders. Farcy. Grease. Croup. Puerperal fever.

c. Medium.—Medium Periods—5 to 8 days.—Relapsing fever. Gonorrhœa. Vaccinia. Inoculated variola.

d. Long.—Long Periods—10 to 15 days.—Small-pox. Varicella. Measles. Rötheln. Typhus. Typhoid. Mumps. Malarial fever.

e. Longest.—Longest Period—40 days or more.—Syphilis. Hydrophobia.

If we may accept these as the common expression of knowledge up to the present time we have still much to learn. We exclude several diseases altogether which probably have some stage of incubation, and we are obliged to grant exceptions in respect to those that admit of being more readily classed together.

[TO BE CONCLUDED IN AUGUST NUMBER.]

Abstracts.

Effects of Malaria on Man.—In addition to the direct effects of malaria, a diathetic condition seems to be established which mo lifies other diseases. The effects of malaria are, indeed, most protean in form, not only in its own definite and well-marked pathological processes, but it simulates others. The stupor of typhus, the collapse of cholera, the high temperature of insolation, the sickness of an irritant poison, the convulsions of epilepsy or of dentition, may occur in the pernicious forms. It induces anæmia and general cachexia, with structural changes in the liver, spleen, or other viscera, neuralgia, asthma, and various other symptoms of disturbed innervation and sanguification, and it also appears to be in close etiological relation with dysentery, cholera, diarrhœa, beriberi, hydrocele, elephantiasis, bronchocele and hepatic disease. Whatever its nature may be, its action on the human economy is very striking; it affects the central nervous system, causing disturbance of vaso-motor action, paroxysms of fever, and congestion of the abdominal viscera, which may become periodic in recurrence, or pass on to structural changes in the liver and spleen, or intestinal mucous membrane. No one can have resided long in a malarious climate, such as Assam, without observing the cachectic, deteriorated aspect of the people, who, although they may never have had a single attack of fever, scarcely feel ill, and would resent being told so, are yet victims to the insidious action of the poison, and present evidences of anæmia, degenerate tissues and chronic visceral disease.—Croonian Lectures. Sir Joseph Fayrer, M.D., F.R.S., etc.

Treatment of Epidemic Cerebro-Spinal Meningitis.—We cull from the *Medical Times* the treatment advocated by Dr. Karl

Jaffé: The therapeutics of this disease are quickly summed up. The author approves of the advice of the older observers with regard to the ice treatment applied to the spine, and the use of narcotics, without which we can scarcely succeed even in the lightest cases. Blood-letting has only a very transitory effect. Of remedies, laxatives, especially calomel in large doses, are especially valuable. Mercurial inunctions in one case were without any influence worth mentioning. Prolonged bathing cannot generally be carried out, yet tepid and cool baths, when the temperature is high, are very useful. The medicamental antipyretics (quinia, salicylic acid, and also sodium benzoate) may be entirely discarded, because they are more uncertain than the baths, and they ruin the already weakened digestion. He found that the sick were always worse after their use, in the cases in which they were tried, so he finally gave it up. This medical nihilism will appear justified if we consider how largely those affected with meningitis perish, especially with the rapid form of the disease, how protracted is the convalescence, and what lasting injury must follow the use of every remedy and every means (we might here also include blood-letting), which in any way alters the digestive tract and affects the tissue-changes of the patient.

Icterus Neonatorum.—Birch Hirschfield, in an article in Virchow's *Archiv*, an abstract of which appears in the London *Lancet*, gives the following as the pathology of that hitherto obscure disease: It is very difficult to avoid associating the jaundice in some way with the disturbance of the hepatic circulation on the transfer of its chief blood supply from the umbilical vein, especially when regard is had to the conspicuous congestion and œdema of the liver, well described by Weber, which occur in cases in which the circulation through the umbilical cord is interrupted before the respiratory movements, by their effect on the right heart, afford an adequate compensation. The vessels in the hilus of the liver are surrounded by a dense layer of connective tissue, which is continued into the organ along the branches of the portal vein, and in cases in which there is venous obstruction in the liver, in consequence of hindered birth, this tissue is the seat of conspicuous œdema. A broad layer of gray

pulpy tissue encloses the vessels, and is seen also around the umbilical vein in its diaphragmatic portion, and may also extend to the gall-bladder. The microscopical appearances of this tissue are those of œdema, with a more or less abundant accumulation of round cells in the interstices of the tissue. This swelling of the tissue must compress the bile-ducts obviously, and, not only under these circumstances are the bile-ducts distended, but there may be a positive difficulty in squeezing the bile out of the gall-bladder in the duodenum, and in the latter there is a manifest deficiency of bile. In such cases, in which death occurs during the first day of life, commencing icterus may be distinctly detected, and the gradual increase of the jaundice in connection with this pathological condition, may be observed in patients in whom life continues longer, as cases reported by Birch Hirschfeld demonstrate.

Cholera in West Africa.—Recent information brings definite news of the imposition of quarantine, both maritime and inland, at British stations on the Gold Coast on account of cholera prevailing more or less among the Mohammedan population on the Upper Niger. The outbreak is believed to be an offshoot of the prevalence of the disease at Mecca and in the Hedjaz in the autumn of last year. Mohammedan pilgrims make their way from the Mohammedan population, in Western Soudan, across the whole breadth of the African Continent to Mecca, and it is surmised that these pilgrims, returning from the Holy Land of the Moslems at the time when cholera was prevailing there, introduced the disease to the banks of the Niger.—*London Lancet.*

AT a séance of the French Academy of Medicine held May 9, Dr. Blanche read a communication discussing whether insanity should be considered a ground for divorce. His negative answer was subscribed to by Magnau and Charcot. It was based on the possibility of recovery. Even in incurable cases, there are phases of remission preceding the time when the disease ultimately became incurable, but in this case, death was not often long delayed.—*Arch. Gén. de Méd.*

INSANITY AND DIVORCE.—A recent English decision (*Med. and Surg. Reporter*) is of some interest in this connection. On the night of the marriage, the wife refused to allow it to be consummated. She was subsequently found, on examination by several alienists, to be a melancholiac, and mentally unfit to enter into a marriage contract. The court decided the marriage was null.

The editor of the *Journal of Nervous and Mental Disease*, commenting on the late resignation of all the members of the post-graduate faculty of the University of the City of New York, believes that a post-graduate school of Medicine will be started, in which the teaching of neurology and psychiatry will hold an important position.

René has made a large number of experiments upon the rate of transmission of nerve force in man. He obtained $\frac{3.4}{100}$ of a second as the approximative duration of a cerebral act; and a rate of transmission of nerve force in a sensory nerve of 28 meters a second.

Paul Bert, following in the steps of M. Béchamp, has, by a series of experiments, discovered that oxidized water arrests fermentation from the presence of living organisms, but is inert in the presence of amorphous ferments (diastase, saliva, pancreatic juice, etc.)

Even the rudest and most empirical ideas of diseases presuppose ideas of the healthy states from which they are deviations; and obviously the diagnosis of diseases can become scientific only as there arises scientific knowledge of organic actions that are undiseased.

The idea that iron is an analeptic has come to an end. Alimentation is more than sufficient to furnish the two or three grams of iron which are contained in the totality of an adult's blood.—Dr. Luton, in *L' Union Médicale*.

CLINICS.

MONDAY.

Eye and Ear Infirmary—1.15 p. m., Otological, by Prof. Jones; 2.15 p. m.. Ophthalmological, by Prof. Hotz.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical, by Dr. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes; 3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m., Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p.m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Dr. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics, by Profs. J. H. Hollister and R. N. Isham.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

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Original Communications.

ARTICLE I.

HEREDITARY INSANITY. By A. W. HAGENBACH, M.D., Assistant Superintendent Cook County Hospital for the Insane.

The large percentage of insane patients admitted to this hospital in whom there pre-existed an undoubted hereditary predisposition to insanity led me, several years ago, to begin paying special attention to that part of the histories relating to heredity. As I have been stationed in the male department, the following observations will relate more especially to the male insane. A few cases among females will, however, be made use of to illustrate certain points.

I have before me the histories of 150 male patients admitted to the hospital from September 1, 1879, to September 1, 1881, and from these most of my deductions are drawn. My reasons for li...iting myself to these cases are the brief and unsatisfactory histories of patients previously admitted; also because I preferred

accurate histories in limited numbers, to the promiscuous statistics too frequently made use of by the enthusiastic statistician. The difficulties encountered in obtaining accurate family histories cannot be appreciated by anyone who has not had occasion to collect them. People will frequently insist that every one of their blood relatives enjoyed excellent general health, and a most desirable mental and nervous constitution, while their speech and actions completely refute their assertions. The mere statement by relatives, that "There is no insanity in our family," is far from conclusive, as not infrequently, when more specific inquiries are made into the family history, it will be learned that an uncle, or aunt, committed suicide without any known cause, while a cousin was always regarded as "peculiar," and still others were epileptic, hysterical, or what not, and yet they cannot imagine how a member of such a healthy and well balanced family could ever have become insane. Ignorance of family history, false pride, and even superstitious fears have at times to be contended with in collecting histories.

The following table, "Table I," will show the age, occupation, form of insanity, and number and degree of relationship of insane relatives, of all the insane, in whom a history of hereditary predisposition was obtained, in the one hundred and fifty patients of whom this article chiefly treats.

In glancing over the table, it will be seen that 41 patients out of 150, admitted during two years, had insane relatives. If we subtract from this number the five cases who had insane cousins only as insufficient evidence of heredity, as the insanity might have been transmitted to them by persons related to the patient by marriage only, we still have 36 patients with a strong history of an inherited predisposition to insanity. When it is remembered that these patients were inmates of a pauper asylum, that at times it is impossible to learn even their correct names, and the relatives when found were frequently lamentably ignorant of their family histories, there can be no doubt that could the full histories of all the patients have been ascertained, fully 33 per cent. would have had insane relatives, and are themselves the victims of an inherited predisposition to mental disease.

TABLE I.

No.	Age.	Occupation.	Form of Insanity.	Relatives Insane.									
				Father.	Mother.	Sister.	Brother	Uncle.	Aunt	G. Mother.	G. Aunt.	Cousin.	
1	45	Engineer.	Melanch.	1	...	4	....	1	1	....	....	....	
2	18	Laborer	Mania.	....	....	....	....	....	1	....	....	....	Both parents very intemperate.
3	34	Exp'sman.	G. Paresis.	....	...	....	1	....	....	....	....	....	
4	24	Clerk.	Dementia.	....	....	....	....	1	....	....	1	1	Mother extremely nervous.
5	48	Jockey.	Melanch.	....	1	....	1	....	....	....	....	....	A son epileptic.
6	52	Laborer.	Dementia.	1	....	....	....	....	....	....	....	....	
7	33	Peddler.	Melanch.	....	....	....	....	3	1	....	....	....	Mother paralyzed.
8	39	B'ksmith.	Melanch.	....	....	1	1	....	....	....	....	....	
9	29	Laborer.	Mania.	....	....	....	1	....	...	....	....	....	Two nephews imbecile.
10	34	Laborer.	Melanch.	....	1	....	....	....	....	....	....	....	
11	32	Printer.	Mania.	1	....	....	....	....	1	....	....	....	Parents were first cousins.
12	39	L'ksmith.	Dementia.	1	....	....	....	....	....	....	....	....	
13	50	Laborer.	Man. Rec.	1	....	....	....	....	....	....	....	....	
14	22	Cigarmkr.	Dementia.	....	....	....	....	....	....	....	....	1	
15	54	Hospter.	Non Epil.	....	....	....	....	....	....	....	....	1	
16	28	Uph'lste'r.	Melanch.	...	....	....	1	....	....	....	....	....	
17	23	Liverym'n	Melanch.	....	....	....	....	....	....	....	....	1	
18	26	Student.	Melanch.	1	1	....	1	....	....	1	....	....	Brother and grandmother suicidal.
19	52	Plasterer.	Mania.	1	....	....	....	....	....	....	....	....	
20	29	Printer.	Man. Rec.	1	...	....	....	....	1	....	....	....	
21	40	Laborer.	Mania	....	....	....	....	....	1	....	....	1	
22	52	Laborer.	Dementia.	....	....	....	....	....	1	....	....	1	Two nephews insane.
23	30	Shoem'k'r	Melanch.	....	....	....	1	....	....	....	....	....	
24	45	Clerk.	Mania.	....	....	1	....	....	....	....	....	....	Father died of cerebral apoplexy.
25	30	Clerk.	G. Paresis.	....	...	....	....	1	....	....	....	....	
26	66	Farmer.	Melanch.	....	1	....	....	....	....	....	....	....	Father died of paralysis agitans.
27	24	Actor.	Melanch.	....	....	....	....	1	....	....	....	....	
28	32	Laborer.	Dementia.	....	....	....	....	....	1	....	....	....	
29	62	Machinist.	Melanch.	...	....	....	1	....	....	....	....	....	Two brothers committed suicide.
30	43	Laborer.	Man. Rec.	...	....	....	1	....	....	....	....	....	
31	50	Laborer.	Dementia.	....	....	....	....	1	1	....	....	....	
32	40	Farmer.	Melanch.	....	...	....	....	....	....	....	....	1	Father very eccentric.
33	8	Laborer.	Man. Rec.	....	....	1	1	....	1	....	....	....	
34	35	Painter.	Mania.	1	....	....	....	....	....	....	....	....	
35	36	Baker.	Mania.	....	...	....	....	1	....	....	....	1	
36	45	Printer.	Dementia.	....	...	....	....	....	....	....	....	1	
37	19	Clerk.	G. Paresis.	....	1	....	....	....	....	....	....	11	Father hemiplegic.
38	27	Laborer.	Dementia.	....	1	....	....	....	....	....	....	....	
39	41	Fireman.	Mania.	....	....	1	....	....	....	....	....	....	
40	45	Carpent'r.	Man. Rec.	....	....	....	....	1	....	....	....	1	
41	1	Clerk.	Melanch.	....	...	....	1	....	....	....	....	....	
			Total.....	9	6	8	12	10	16	1	1	12	

The fact that different writers on insanity report from 15 to 75 per cent. of the admissions to asylums as due to an inherited predisposition, may possibly be accounted for by the various area of relationship included in these tables, as well as the more or less complete facilities for getting histories of the cases admitted. It would not be remarkable that the percentage regarded as hereditary should be larger in private than public asylums, because the relatives of the class of patients usually sent to private hospitals are better informed as to their family histories than those of the average indigent lunatic.

In reply to the question, "How does the insane neurosis originate?" I have become satisfied that some of the chief elements are intemperance in ancestors, consanguineous marriages, intermarriages of persons of like vicious temperaments, and tuberculosis. I could enumerate a number of cases of intemperance in ancestors resulting in insanity in the offspring, as this is a frequent item in the histories of the insane, but one illustrative case will be briefly reported.

Case 1.—J. C., after some slight exciting cause, went violently insane. When admitted to the hospital all the symptoms of acute mania were well marked. In taking a history of the case it was learned that his ancestors on paternal and maternal sides were long lived, and well balanced; there had never been a single case of insanity or other nervous affection in either branch, so far as could be ascertained. As he had always enjoyed average health previous to the attack of insanity, which had manifested itself after a slight quarrel with his aunt, I inquired very carefully into the family history, but was unable to learn any facts tending to show that his ancestors could have been responsible for his poorly balanced mind, until I learned from outside sources a fact which had been carefully concealed by his relatives, viz., his father was a habitual drunkard for years previous to the birth of the patient, and died of delirium tremens. His mother, who was still living at the time of his admission, had also indulged to excess before the patient was born. He commenced to improve shortly after his admission, and was discharged as "recovered" in a few days less than eight months, and has been working ever since. The mental excitement for the time was allayed, but unless he is extremely fortunate in escaping all sources of excitement, the probabilities are that he will sooner or later again become deranged, and most likely end his days as a chronic dement in some hospital for the insane, as each recurrence of the maniacal excitement will leave his mind more and more shattered, and less able to resist exciting causes, or recover from the maniacal excitement.

Consanguineous Marriages.—"Like begets like." The parents are reproduced in the children, transmitting to them all their qualities, whether good or bad. If both parents have simi-

lar bad qualities, the offspring inherit their combined defects. This fact is understood by the intelligent breeder, who carefully studies all the good and bad points of the animals he is about to breed. But a short time ago a gentleman refused to breed a cross mare with an equally vicious horse, because he feared the offspring would be so refractory as to be entirely unmanagable. Different breeds of horses have distinguishing traits by which they are easily recognized. I remember a steed whose colts, nearly without exception, it was almost impossible to break to drive, but if once thoroughly broken they made the safest of horses. Different breeds of horses have characteristic mental traits, such as gentleness, kindness, etc., by which they may be recognized almost as surely as by their peculiarities of form, color or gait. While interbreeding within narrow limits is sometimes resorted to, to increase certain desirable points, if carried too far the breed invariably deteriorate. In the human species, the same as among the lower animals, interbreeding in certain cases might prove harmless or even beneficial to the offspring, but such cases must necessarily be as rare as the examples of families who are entirely free from all nervous and physical de-defects.

To illustrate how consanguineous marriages may prove harmless in one instance, and deleterious in another, I report the two following cases, which have come under my own observation. With all the parties of the first case I have been intimately acquainted for years. The second case came to my notice in this institution several years ago.

Case II.—A, aged about forty years, of sanguine temperament, married his first cousin, B, aged about twenty-five years. As a result of the marriage four children were born, one boy and three girls, all of whom are living and enjoying good physical and mental health. The father of A, of a nervo-sanguine temperament, a school teacher by profession, died at the age of eighty-nine years, of "general exhaustion accompanying old age." His mental faculties at the age of eighty-six, when I last saw him, were remarkably well preserved. The mother of A, of a mixed temperament, always enjoyed good health, and at the age of eighty-five years was still quite hale and hearty, and in full

possession of all her mental faculties. Her memory was remarkably retentive for one of her years, and she could repeat from memory the names and dates of all her grandchildren, over twenty in number. Her recollection of recent events was quite remarkable. After reading a newspaper she could repeat correctly all the items of interest, not omitting the most minute particulars, even to the dates, localities, etc. She died of "general exhaustion accompanying old age," aged eighty-eight years.

The father of B, a sober, industrious man, of a phlegmatic temperament, died, aged sixty-five years. Cause of death unknown. The mother of B, a sister of A's mother, died at the age of seventy-five years, of "diarrhœa and old age." The family histories of all concerned were remarkably free from nervous affections, not a single member, so far as could be ascertained, had ever been insane, epileptic or hysterical, neither had there been a single death from rheumatism, phthisis pulmonalis, or cancer, in the entire family. It will be seen by reviewing the histories of A and B, that they should have inherited good mental and physical health, and their children, perfect in every respect, demonstrate that the danger of consanguineous marriages to the offspring does not depend upon the degree of consanguinity, but upon the increase of defects (especially nervous) existing in the parents.

Case III.—C, aged twenty-five, of nervous temperament, whose father was very nervous and eccentric, married his first cousin, also of a nervous temperament. The mother of D, and sister to C's father, although never confined in an asylum, was regarded by every one as of unsound mind for many years previous to her death. Result of marriage, five children, two girls and three boys. The boys all died during the period of dentition. Two died in convulsions. Of the two girls, one died in the hospital of epileptic dementia, the other, and only surviving child, aged about eleven years, was a microcephalic idiot, who had never been able to walk, on account of deformed extremities, and when I last saw her parents, about three years ago, I was informed that she was entirely helpless, unable to feed herself, or even direct attention toward the calls of nature.

To the question so frequently asked of the physician, "Are

consanguineous marriages harmful?" I would reply, in the words of Prof. J. Adams Allen, "That depends upon the mental and physical condition of the parties united in marriage." There are but very few families that are entirely free from all nervous defects. This I consider as one of the greatest reasons why consanguineous marriages generally prove harmful, and the miserable creatures frequently begotten are such burdens to themselves and society, and the danger of latent nervous disease even in persons of apparently good health are so great, that I would favor the passage of laws strictly prohibiting all consanguineous marriages. The cases of the patriarchs who intermarried very closely cannot, I think, be cited as favoring the practice, as from all accounts extant of these people, we are led to regard them as persons who arrived at very great ages, enjoyed excellent general health, and were remarkably clear-headed. In short, they were just the people who could stand intermarriage with blood relatives. But the ordinary mortal of the nineteenth century, afflicted with inherited neuroses, should not, in this respect, take pattern by the examples set by the patriarchs. There are few more difficult problems for the physician to solve than that of the absence or presence of danger to the offspring in relatives about to be united, and unless satisfied by a careful examination of the parties, as well as the family histories, that there is no possible danger the union should be strongly objected to.

Other Improper Marriages.—If not somewhat foreign to my subject, a great deal might be said regarding the duties of physicians when called upon to express a professional opinion, regarding the advisability of parties becoming united by marriage, not related, but affording evidences of insanity, phthisis pulmonalis or any other defect that could endanger the health or existence of the offspring. Physicians too frequently pander to the popular delusions that puberty and marriage are the panaceas for every ailment to which the young female is subject to. The parents of nervous or scrofulous children are promised a restoration to health after the establishment of the menstrual function, and if no improvement follows at this period, the next step is to select some rugged mate, who is to effect some wonderful transformation in the unfortunate being. A sad case of this kind

came to my notice in the person of F. B., an inmate of this asylum, who was imbecile and hysterical since ten years of age. At the age of seventeen years she was given in marriage by her parents to a drunken, worthless fellow, who, after living with her for several years, ill-treating her in a shocking manner, deserted her, a mother of two children, which, fortunately for themselves and society, died in infancy and early childhood. By removing from society these imperfect creations, preventing the propagation of so deleterious an element, and affording protection to those who, above all others, are easily misled and imposed upon, the hospitals for Feeble-Minded Children, which have been established in the various States of the union, perform their highest mission.

Phthisis pulmonalis is a very common cause of death among the ancestors of the insane. In fifty cases of insanity where the causes of death of parents were pretty accurately ascertained eight had fathers and seven had mothers die of phthisis pulmonalis. A patient, at present an inmate of this hospital, with evidences of tubercular deposits in both lungs, and whose insanity is regarded as due to tubercular meningitis, had his father, brother, four first cousins and paternal uncle all die of phthisis pulmonalis. Phthisis is one of the most frequent causes of death among the insane, and as the usual signs, such as cough and expectoration, are frequently greatly modified or entirely wanting, patients are not infrequently found, upon physical examination, in an advanced stage of the disease, in whom its presence had hardly been suspected. In a large percentage of post-mortems held upon the chronic insane, tubercular deposits were found (generally in the lungs only), but in several instances greatly diffused throughout the entire body, especially in the peritoneum, and cerebral meninges.

Aside from the causes already enumerated, any disease in the parents tending to innervation and general debility, may have an effect upon the nervous organization of the children begotten while the parents are thus debilitated.

According to some of the best authorities, insanity in the mother is more dangerous to the daughters than the sons, while insanity in the father is said to be about equally dangerous to

sons and daughters, and that on the whole insanity in the mother is more dangerous to the offspring than insanity in the father.

By glancing at Table I. it will be seen that nine of the patients had insane fathers, and six had insane mothers. That insanity in the mother is more dangerous to the offspring can, I think, be explained, in part, at least, by remembering the relative importance of the two sexes in the reproduction of the species, especially the human, in whom the fœtus, for months, is carried in the uterus of the female, and, I firmly believe, influenced to a certain extent by the emotions and nervous impressions of the mother; and for months after birth the child receives its sole nourishment from the female lacteal secretions, which certainly are changed in quality and quantity by the mental condition of the mother, and even later, during the early years of childhood, while the characters are being formed, the mother, by her constant presence and example, almost invariably exerts the greater influence over the offspring. Of the five great acts comprising the function of generation, 1, copulation, 2, fecundation, 3, gestation, 4, delivery, 5, lactation, the male takes part in the first two only. While the relative importance of the sexes may be reversed in certain of the batrachia, where impregnation takes place after the spawn in which the eggs are contained are deposited outside of the body of the female, in the mammalia the female performs the greater part of the function of generation.

There was a time when breeders imagined that all it was necessary to do to improve their stock was to import a blooded bull, but a radical change of opinion has taken place among intelligent breeders, as can be plainly seen by visiting a blooded cattle show and noticing the great importance attached to the pedigree of heifers and cows, also the increasing demand and high prices of thoroughbred heifers and cows.

Is the form of insanity or an insane neurosis transmitted? I have seen no cases in which I believed the form of insanity had been transmitted, but regarded all the cases that came under my care as having inherited an unstable nervous system, with a predisposition to nervous, and especially mental disease, the form of insanity depending chiefly upon surroundings, education, and exciting causes. Thus, of two brothers inheriting an insane tem-

perament, one by excessive mental work and close confinement, impairs his general health, becomes dyspeptic, anæmic and neurasthenic. If, while in this condition he becomes insane, the insanity is apt to be less acute and less amenable to treatment than insanity in the brother, who always enjoyed active out-door exercise and good digestion until he met with some sudden reverse in fortune, which disturbed the equilibrium of his inherited poorly balanced mind.

The cases of suicidal melancholia reported, in which several members of the same family became melancholy and committed suicide, I do not regard as an evidence of the theory of the transmission of the form of insanity, and think they can be explained by remembering that "The particular form of insanity is determined by the natural temperament, and as the temperament is hereditary, the predisposition to insanity in blood relatives being similar in nature, will result in similar forms of insanity," modified by surroundings, education, etc.

One of the most remarkable histories of an inherited predisposition to insanity ever obtained in a patient admitted to this hospital, is case 1, of Table I, and is briefly reported as affording an example of the virulent nature of the neurosis in some families.

Case IV.—H. F., aged forty-five years, locomotive engineer, admitted September 11, 1879. Upon examination found him poorly nourished: heart and lung sounds normal; tongue pale and flabby. Partial paralysis involving right side, of several weeks' duration. For cranial measurement, etc., see case 1, Tables I and III. Mentally he was alternately melancholy and maniacal, with short intervals of comparative sanity from the time of his admission until he eloped, January 15, 1880. He was the youngest of seven children, four of whom died insane. The following enumeration will show the present condition of those living, and causes of death of those deceased, of all his brothers and sisters:

I.—C. F., farmer, living, mental condition unknown, general health has been greatly impaired for many years.

II.—E. F., died, aged nineteen years, from sequelæ of measles.

III.—W. F., lake captain, aged fifty-five years, suffers greatly

with nervous headache, neuralgia, and marked impairment of his general health. Very nervous and emotional.

IV.—Sister, age unknown, for many years an inmate of the State Hospital for Insane, at Utica, N. Y. Was removed from the hospital completely demented several weeks previous to her death. Form of insanity, melancholia.

V.—Sister. Died in asylum at Rochester, N. Y.; age, form of insanity and cause of death, unknown.

VI.—Sister; married; died at her home of puerperal insanity several weeks after confinement.

VII.—C. F., subject of this history.

His father, although never an inmate of an asylum, was of unsound mind for ten years previous to his death. His paternal uncle was an inmate of the asylum at Utica, N. Y., for several months, and was discharged as recovered in 1853. He afterward held numerous positions of trust until several years ago, when he committed suicide by hanging, without any known cause. He was, financially and otherwise, comfortably situated.

H. F. also had a paternal aunt that was at times insane. He was apparently well until nineteen years of age, when he became insane, and was for several months an inmate of the asylum at Utica. He afterward served his time as a machinist, and soon afterward got an appointment as locomotive engineer, a calling which he followed almost uninterruptedly until several years ago, when he was compelled to quit on account of impaired general health. Six months previous to his admission he had an apoplectic fit, followed by partial right hemiplegia, and considerable mental excitement, from which he recovered completely in the course of several weeks. He had several similar attacks previous to his admission, September 11th, 1879.

Sept. 13.—Had a fit last night; paralysis more marked. Mentally much depressed, speaks of committing suicide.

Sept. 19.—Since the 13th he has gradually become excitable and noisy. This A. M., is very violent, gesticulating with his sound arm and talking incessantly.

Sept. 24.—General health failing. Mentally depressed. Marked loss of memory.

Sept. 25.— Very noisy, shouting at the top of his voice.

Oct. 10.—Since September 25th has been violent most of the time. Sedatives, and, later, milk punches were administered without relieving the mental excitement or insomnia. I also injected $\frac{1}{3}$ grain of morphine hypodermically every four hours, which caused eight hours of sleep after the third injection.

Oct. 12.—Much better this A. M. For the first time since admitted is able to hold knife in paralyzed hand.

Oct. 14.—Walked several steps without support.

Oct. 20.—Marked mental improvement.

Nov. 1.—Able to walk about the ward without aid. Transferred to convalescent ward.

Nov. 17.—Had several fits last night. Hemiplegia returning.

Nov. 19.—Had five fits in one hour, yesterday.

Nov. 20.—Hemiplegia complete. Intellect not so much disturbed as when admitted.

Dec. 2.—Had no fits since November 20th, and has been improving ever since.

Dec. 5.—Paralysis disappearing; is able to walk alone.

Dec. 20.—Had no fits the past month; is able to be about all day. Is very talkative, and at times emotional.

Dec. 29.—Marked improvement. He is allowed the liberty of the grounds. From this date he improved rapidly, and had no more fits until he eloped January 15th, walking eight miles to Chicago, where he remained. On February 13th the fits returned with great frequency and severity, the hemiplegia manifesting itself after the first fit. He soon became unconscious, and died several minutes after a severe fit, February 15th.

This case, aside from its general interest, illustrates the positions of trust sometimes filled by persons of a highly insane neurusis. For many years he followed the calling of locomotive engineer, and when admitted he had in his possession letters of recommendation from railroad superintendents of some of the leading railroads in the United States. A previous attack of insanity, and a marked hereditary taint should hardly be regarded as qualities fitting a man to hold a position where the destinies of hundreds of lives are frequently placed in his sole care. How

some sudden danger might have developed insanity is illustrated by the case of Von H., a German locomotive engineer, running out of Paris, France, who went insane during a railroad collision, the result of misinterpreted orders. He was for two and a half years an inmate of an asylum in Paris, when he was discharged as "recovered."*

The statement of M. Esquirol, that persons born before the development of insanity in the parents are less subject to mental disease than those who are born after the malady has displayed itself, I regard as due in some instances to the fact that the insanity in the parent may have originated after the birth of some of the children. In some cases, the children born previous to the development of insanity in the parents are completely free from hereditary taint. A patient treated here illustrates the point:

Case V.—J. B., aged seventeen years, admitted February 13, 1879, with the following history: He was always regarded as dull, and could not keep up with his classes while at school; was always quiet and inoffensive, preferring solitude to companionship. He had the exact features of his father, a sober, industrious man, with a good family history, whose sanity was never questioned until after he met with a severe accident, nine years previous to the birth of the patient, when he sustained a severe fracture of the skull as a result of a kick by a vicious horse he was grooming. He was carried to his home in an unconscious condition, in which he remained for several days. Upon regaining consciousness it was discovered that his mind was shattered to such an extent that he did not recognize his friends. He was sent to an asylum in Scotland, from which he was discharged greatly improved, at the end of seven years. Two years after his return home the subject of this history was born; shortly afterward his father grew worse, and was re-admitted to the asylum, where he died demented four years later. Three sisters and one brother to J. B., born previous to the injury to their father, which was regarded as the sole cause of his insanity, are living and well, presenting no perceptible indications of an in-

* The patient is at present an inmate of this asylum.

some neurosis. If the insanity in the father was due entirely to [illegible] sustained, the children born previous to that event [illegible] free from an inherited neurosis. The form of insan[illegible] was mania, at times very acute. He manifested [illegible] tendencies, and imagined that he was followed by [illegible] seeking his destruction. He commenced to improve [illegible] after his admission, and was discharged as "recovered" [illegible] 1st, 1879.

Members of Insane Families not Themselves Insane.—While certain members of a family predisposed to insanity become insane, others pass through life without insanity developing. Such persons are frequently spoken of by their associates as nervous, peculiar, or eccentric; they have unstable nervous systems, and poorly balanced intellects, escaping insanity in some instances by the absence of sufficient exciting causes. Innumerable examples of this class of persons are noticed among the blood relatives of the insane while visiting the asylum. No one who has come in contact with these people, especially in asylums, where they are unusually excited, but has had occasion to overlook in them undue excitement, rude manners, and uncalled for criticisms, by remembering that they too were the victims of an inherited predisposition to mental disease, awaiting, perhaps, some trifling cause to develop active insanity. Some of these people are a source of great annoyance to asylum authorities, rushing into print and telling unheard of stories of cruelty and neglect, which are generally proven entirely false if thoroughly investigated. An unusually troublesome relative of this class has frequently complained of the management of every asylum her relative was ever an inmate of, going so far as to interview personally nearly every member of the board of commissioners, writing articles to the press, all because her son did not display the amount of [illegible] she had expected he would.

Exciting Causes.—The exciting causes in persons hereditarily predisposed to mental disease are very variable. In some instances the most trivial causes, such as would not affect a healthy [illegible] organization are sufficient to destroy the equilibrium of [illegible] poorly balanced minds. To illustrate what slight causes are sometimes sufficient to develop insanity in such persons, I

will briefly report two cases that came under my observation in this hospital:

Case VI.—J. W., an individual of this class who had a sister, uncle and several more distant blood relatives insane, had a son meet with a railroad accident, necessitating the amputation of one of his arms. He refused to be consoled, quit his work, and has never worked any since. That the father of a large family depending upon his daily labor for support should refuse to be comforted and lose his reason because of an accident (not fatal) to one of his sons is strong evidence of his unstable nervous organization. The increased responsibilities would have stimulated a healthy mind to greater exertions to provide for his family, and alleviate the sufferings of the son.

Case VII.—P. B., aged eighteen years, whose father was insane for a short period, and an inmate of an asylum forty years ago, whose oldest brother committed suicide by dividing the radial artery and bleeding to death, whose maternal grandmother was insane for thirty years previous to her death, and whose mother, for many years previous to his birth, was at times insane, was admitted to the asylum April 15, 1880. It will be seen that several ancestors on paternal and maternal sides were insane, the entire history pointing to a strongly inherited neurosis. Eleven months previous to his admission here he arrived in America, and almost immediately afterward found employment, but entertaining the most extravagant ideas of the ease with which fortunes were amassed in America, he became greatly depressed on finding that he had to work hard to provide the necessities of life. He conceived the idea that God had forsaken him, and that having to contend against the displeasure of his Maker, he had better sacrifice his life to appease His wrath. With this end in view he tried every means at his command to put an end to his existence, abstaining from all food and constantly looking for an opportunity to commit suicide. The predisposition to mental disease must indeed be strong in a young man with no one but himself to provide for, and without meeting with any of the innumerable hardships through which persons with well-balanced minds frequently pass without the slightest danger to their mental equilibrium, allows the ordinary disappointments

which every immigrant has to overcome, so to prey upon his mind that he believes himself the most unfortunate of beings, whom the very Deity has forsaken. When slight causes, such as would make no unfavorable impression upon a healthy mind are the exciting causes of insanity, it is always well to look carefully for an inherited predisposition to insanity.

In a number of cases in which especial attention was paid to exciting causes, it was noticed that the greater the inherited predisposition, the milder the causes sufficient to develop insanity.

The following table will show the supposed exciting causes in fifty male patients admitted with a history of hereditary predisposition:

TABLE II.

Disappointed affections	1	Masturbation	6
Domestic troubles	5	Overwork	1
Epilepsy	4	Poverty	3
Excesses	2	Religious excitement	3
Financial	10	Traumatic	1
Grief	1		
Intemperance	13	Total	50

In thirty-four cases, or a trifle over seventy-five per cent. of the total number, intemperance, financial troubles, masturbation and domestic troubles were regarded as exciting causes. Intemperance was an exciting cause in thirteen cases, or over twenty-five per cent. It would be interesting to know in what percentage, if any, the taste for alcoholic stimulants was hereditary, but unfortunately the histories do not embrace this point. Financial troubles were exciting causes in ten instances. Reverses in fortune are especially hard to bear by persons of delicate mental organizations, hence their frequency as exciting causes. Instead of the reaction which usually follows in healthy minds, in the naturally weak textural changes take place, which interfere with or prevent reaction taking place. In this manner persons of this class have been known to become permanently demented immediately after sudden reverses in fortune.

Masturbation was regarded as an exciting cause in six cases. I have no doubt that the inherited nervous temperament in some of these led to the practice of the vice; add to this an inherited weakness of will power, and we can understand why when once learned, the practice is rarely discontinued before the mental faculties become greatly impaired or totally destroyed.

In the five cases in which domestic troubles were regarded as the exciting causes, in two instances the family troubles were directly traceable to the nervous temperament and abnormal conduct of the party with an inherited neurosis.

A case illustrating how an insane temperament may cause domestic troubles, came to my notice in a patient who was recently discharged as "recovered," in whom the exciting cause was regarded as domestic troubles, because he and his wife had led very unhappy and quarrelsome lives for several years previous to his admission to the asylum, and long before he was suspected of being of unsound mind. Just previous to his discharge, and when fully restored to reason he informed me one day that he would tell me the cause of his unhappy domestic relations. He said: "I am naturally of a jealous disposition, and when I married a wife ten years my junior I was very jealous of her. On returning from work one evening, several years ago, I found her sitting in the parlor entertaining a gentleman friend of the family's who had taken the trouble to look us up and make a call. The moment I saw him with my wife the idea entered my mind that he had called upon her in my absence for improper purposes."

From that moment he suspected his wife of being unfaithful, and watched her every action. His wife, noticing his changed manner toward her, unconscious of any wrong on her part, and not aware of his weak mental condition, resented his slights and insinuations, and hence their unhappy domestic relations. The case entered as traumatic is that of a patient who became insane during an attack of erysipelas of the face and head following an injury.

General Health.—The general health is almost invariably somewhat impaired in persons hereditarily predisposed to insanity, especially after the development of the malady; so frequently is this the case that in seventeen of the forty-one cases recorded in Table I, the general health was greatly impaired. The following physical peculiarities were also noted:

In case 1, general anæmia, right hemiplegia. In case 4, general anæmia, neurasthenia. In case 5, emaciation, inanition,

vaso-motor paralysis. In case 6, general anæmia. In case 7, partial muscular paralysis, both extremities. In case 9, irregular dilatation of pupils, locomotor ataxia. In case 11, irregular dilatation of pupils, frontal headache. In case 13, headache, not localized; tongue tremulous. In case 14, tongue enlarged, indentation of teeth along the sides. In case 15, anæmia, neurasthenia. In case 16, constant frontal headache, valvular heart lesions. In case 18, intermittent headache. In case 18, neurasthenia; indentation of teeth sides of tongue.

Cases 11, 16, and 18 complained of headache. This percentage is considerably larger than among the insane generally. It is remarkable how seldom the inmates of asylums complain of headache. At the present writing there are but two male patients in the entire asylum who have sufficient pain in the head to cause them to apply for relief, and during the past three months I have had more calls from patients themselves to prescribe for colds than headaches. And even persons in whom headache is a prominent symptom previous to the development of insanity are not infrequently entirely free from this symptom during an attack.

Case VII.—O. B., printer, lost several days each month on account of severe headaches, which obliged him to take to bed. He has not complained of this symptom since admitted to the asylum several months ago, and just previous to his discharge as "recovered" he informed me that he had had no "pain in the head" since admitted, and that the only head symptom he experienced was a feeling of fullness, as if the brain was larger and heavier than formerly. This sensation was no doubt due to cerebral congestion. General, and especially cerebral anæmia is a frequent symptom. In melancholy patients the anæmia frequently, is a result of an insufficient quantity of nourishment taken for weeks, and even months previous to complete abstinence, imagining that the food was poisoned, or mixed with disgusting matter, such as human flesh or even feces. Six of the patients in Table I were neurasthenic previous to being regarded as insane. This is quite a common affection among persons who

have inherited an unstable nervous system. That the entire nervous system is predisposed to disease is proven by the prevalency of hysteria, epilepsy, chorea, and other nervous affections among the blood relatives of the hereditary insane. Constipation is frequently met with in cases of melancholia and acute mania, and a marked mental improvement sometimes follows the administration of a brisk cathartic. Some of the remaining most constant symptoms are vasor-motor paralysis and enlarged, coated or tremulous tongue.

Peculiarities of Development. The arrest of cranial and sometimes general development among imbeciles, idiots, and especially "cretins" are so marked that there is no possibility of mistaking them. A large percentage of the feeble-minded children in the asylums for the feeble-minded present physical defects in the cranial and general development, but the percentage of deformed feeble-minded children is much greater outside these institutions, which refuse to receive epileptic or greatly deformed idiots, as the institutions are intended for that class of feeble-minded children only who, with proper instruction and training, are capable of becoming self-supporting under proper supervision; this, of course, excludes all the lower grades of idiots, who are most frequently deformed. The physical defects among idiots of the lowest grade are frequently so marked as to suggest at a glance, even to the minds of people outside of the profession, imperfect cerebral development. If these patients, who are not infrequently the offspring of insane parents, carry in their very appearance a diagnosis of their disease, it would seem most probable that the inheritors of an unstable nervous system, predisposed to mental disease, would present some physical peculiarities characteristic of an inherited neurosis.

To determine what physical peculiarities, if any, existed among this class of people, I prepared the two following tables, which show the cranial measurements, height, weight, color of eyes, color of hair, and asymmetrical development, of forty insane patients, in twenty of whom the disease was regarded as having originated *per se*, with the following results:

TABLE III.

INSANITY HEREDITARY.

No.	"1."	"2."	"3."	"4."	"5."	"6."	"7."	"8."	"9."	"10."
1	22¼	12	11	11	13¼	5.11	150	Black.	Brown.	
2	22¼	12½	11½	11	13½	5.8	145	Brown.	Brown.	Fullness right side of head.
3	21½	12¼	11	10½	13	5.7	155	Brown.	Blue.	
4	21¾	12	11¼	10½	14	5.7	155	Brown.	Brown.	Left frontal and occipital contr'c'n.
5	22	13	11½	11	13¼	5.9	130	Black.	Brown.	
6	22½	13	11½	11	14	6.1	165	Brown.	Blue.	
7	22½	12	11½	10½	13	5.5½	135	Brown.	Brown.	Rt. frontal contraction.
8	21¾	12	11	12¾	12¼	5.10	160	Light.	Blue.	Fullness right side of head.
9	23	13	12	12	13¾	5.7½	145	Light.	Blue.	
10	22¾	13	12	10½	13½	5.9½	158	Brown.	Brown.	
11	22	12	11½	10	13½	5.8	130	Brown.	Blue.	Left frontal fullness.
12	21½	13	11¼	9½	13½	5.4¾	118	Brown.	Brown.	Left frontal fullness.
13	22	12	11	12	13½	5.9	135	Gray.	Blue.	
14	21½	12½	11⅜	10½	13	5.8	135	Brown.	Blue.	
15	22½	14¾	12	10	14½	5.2	123	Light.	Blue.	Parietal bulging.
16	22	12¾	11	12½	14	5.4	130	Gray.	Blue.	
17	22	11½	11	11½	13	5 6½	135	Gray.	Blue.	
18	22¼	12	11½	11	14	5.9	170	Brown.	Brown.	
19	22½	12½	12	10½	14	5.9	145	Black.	Brown.	Contr'c'n right part parietal region.
20	23	13	12	11	14¼	5.8	175	Brown.	Blue.	Left parietal contraction.
	22⅛	12½	11½	11	13½	5.7½	144 7-10			—Average.

TABLE IV.

INSANITY NOT HEREDITARY.

No.	"1."	"2."	"3."	"4."	"5."	"6."	"7."	"8."	"9."	"10."
1	21½	12½	12	10	13	5.2½	120	Brown	Blue.	
2	22	12½	12¾	10½	13	5.8	145	Brown.	Blue.	
3	22	12½	11¼	10½	12¼	5.6½	135	Black.	Brown.	
4	23¼	12½	11¼	11½	12½	5.5¾	170	White.	Blue.	
5	22	12	11	10¼	13½	5.11	160	Brown.	Blue.	
6	22½	12½	11¾	10½	12½	5.8	140	Brown.	Brown.	
7	23½	13	12	11	13	5.6½	155	Brown.	Blue.	
8	21	12	11	10	13	5.4½	130	Brown.	Blue.	
9	21½	12	11	10¼	12¼	5.5	135	Brown.	Brown.	
10	23¼	13	11½	12¼	14½	6.	170	Light.	Blue.	
11	23¾	13⅛	12¼	11	13	5.6½	180	Brown.	Blue.	
12	22¾	13	11	11¾	14	5.7¼	145	Sandy.	Blue.	
13	22⅛	12	11¾	11	13	5.9	140	Brown.	Blue.	Contracted right eye and forehead.
14	21⅜	13	11½	10¾	14	5.9	140	Grey.	Blue.	
15	23½	13¼	13	10½	14	5.9	155	Brown.	Blue.	Parietal region contracted.
16	21⅜	14	11¼	10¼	14¼	5.9	140	Brown.	Blue.	Parietal region bulging.
17	22¼	12¼	11¼	10	14½	5.5	135	Light.	Blue.	
18	21¾	12½	11⅞	10½	13¾	5.5	130	Brown.	Blue.	Fullness entire left side.
19	22¼	11½	11	11	13½	5.6	145	Brown.	Blue.	
20	22	12¼	11½	11	14	5.8	150	Brown.	Blue.	
	22¼	12½	11½	10¾	13⅜	5.7	146			—Average.

EXPLANATION OF TABLES III AND IV.

"1." Circumference of head on a line with nasal eminence and ext. occip. protuberance.

"2." From ear to ear over parietal region.

"3." From ear to ear over nasal eminence.

"4." From ear to ear over ext. occip. protuberance.

"5." From nasal spine to ext. occip. protuberance.

"6." Height.

"7." Weight.
"8." Color of hair.
"9." Color of eyes.
"10." Asymmetrical development.

By comparing the tables it will be seen that the average cranial measurements are very similar, and do not show any difference in the general size of the crania. The "height" and "weight" were remarkably similar, there being an average difference of less than two pounds in the weight, and but four-fifths of an inch in the height, showing that there is no general arrest of development characteristic of an inherited insane neurosis, and that while the nerve tissue may be ever so predisposed to disease, there generally is an average cranial development.

While the tables do not show any general arrest of development, they do show a marked difference in the asymmetrical development. Thus in Table IV the cranial development was symmetrical in all but cases 13, 15, 16 and 18, while in Table III an asymmetrical development was noticed in nine cases, nearly fifty per cent. of the total number examined.

The unequal developments in Table IV were as follows:

Case 13.—Contracted right eye and right side of forehead.

Case 15.—(An epileptic patient) parietal regions contracted; more marked on left side.

Case 16.—Parietal regions bulging; more marked on right side.

Case 18.—Entire left side of head enlarged.

In Table III they were:

Case 2.—Right side of head enlarged, especially noticeable in frontal region.

Case 4.—Left frontal and occipital contraction.

Case 7.—Right frontal contraction.

Case 8.—Fullness entire right side of head.

Case 11.—Left frontal fullness.

Case 12.—Left frontal fullness.

Case 19.—Contraction right part, posterior parietal region.

Case 20.—Left parietal contraction.

Aside from the asymmetrical cranial development there is frequently a difference in the development of the two sides of the face, especially noticeable in the wrinkles on the forehead, and the lines extending from the alæ of the nose to the angle of the

mouth, so that in some instances the patient presents an appearance somewhat similar to that seen in hemiplegic persons where the muscles of one side of the face are slightly involved. While the above peculiarities of asymmetrical development are most frequently met with among the insane in whom the malady is hereditary, they are all met with in persons of sound mind without any inherited or acquired predisposition to insanity. A want of symmetry in the cranial development cannot therefore be regarded as an invariable evidence of an insane neurosis or liability to mental disease, and yet its greater frequency among the hereditary insane should not be overlooked as an element in forming an opinion as to the probability of insanity developing as well as suggest early treatment to avert an outbreak of insanity.

TABLE V.

INSANITY HEREDITARY.

No.	Recovered.	Improved.	Unimproved.	Died.	Eloped.	Number of months in Asylum.	Re-admitted.	Sent to State Hospital.	Here.
1					1	4			
2	1					8			
3	1					4			
4						10		1	
5		1				5			
6				1		1			
7		1				2	1		
8		1				2			
9				1		4			
10		1				3	1		
11		1				2	1		
12				1		4			
13		1				1	1		
14			1			4			
15									1
16						3		1	
17	1					1			
18	1					3			
19		1				4			
20		1				4			
21						8		1	
22		1				1	1		
23			1			3			
24						7		1	
25				1		5			
26				1		7			
27					1	8			
28	1					3	1		1
29			1			6	1		1
30	1					3			
31				1		4			
32	1					4			
33		1				6	1		
34	1					5			
35		1				1	1		
36				1		3			
37			1			2			
38		1				24	1		
39		1				24	1		
40		1				4	1		
Total	8	14	4	7	2		12	4	5

Prognosis. The prognosis as to a first recovery would seem to be more favorable in persons hereditarily predisposed, as will be seen by comparing Tables V. and VI. comprising forty patients of either class.

TABLE VI.

INSANITY NOT HEREDITARY.

No.	Recovered.	Improved.	Unimproved.	Died.	Eloped.	Number of months in Asylum.	Re-admitted.	Sent to State Hospital.	Here.
1									1
2				1		1			
3					1	10	1		1
4	1					1			
5									1
6			1			4			
7				1		1			
8	1					1			
9				1		1			
10		1				12			
11	1					3			
12		1				4	1		
13				1		1			
14		1				3			
15			1			9	1		1
16									1
17						2		1	
18				1		20			
19		1				3			
20					1	3			
21		1				12	1		
22	1					2			
23						1		1	
24	1					3			
25		1				1			
26						8		1	
27	1					3			
28									1
29									1
30						5		1	
31				1		1			
32				1		1			
33									1
34									1
35		1				10	1		1
36				1		2			
37		1				4			
38		1				18			
39		1				10	1		1
40		1				2			
Total	6	11	2	8	2		6	4	11

INSANITY HEREDITARY.

Average number of months in asylum of those discharged, recovered, 3⅜.

Average number of months in asylum of those discharged improved, 5⅜.

Average number of months in asylum of those discharged unimproved, 3 4-5.

Average number of months in asylum of those who died, 4.

Average number of months of those sent to State Hospital, 6.2-5.

INSANITY NOT HEREDITARY.

Average number of months in asylum of those discharged recovered, 2.

Average number of months in asylum of those discharged improved, 11 2-7.

Average number of months in asylum of those discharged unimproved, 6½.

Average number of months in asylum of those who died, 3½.

Average number of months of those sent to State Hospital, 5⅜.

RECAPITULATION OF TABLE V.

Discharged recovered, 8; improved, 14; unimproved, 4; died, 7; eloped, 2, re-admitted, 13; sent to State Hospital, 4; remaining, 5.

RECAPITULATION OF TABLE VI.

Discharged recovered, 6; improved, 11; unimproved, 2; died, 8; eloped, 2; re-admitted, 6; sent to State Hospital, 4; remaining, 11.

By comparing Tables V and VI, it will be seen that twenty-two of the former, and seventeen of the latter were discharged as recovered and improved, tending to show that the percentage of first discharges are in favor of the former class. While the percentage of discharges was greater in the former, it will be noticed in the same tables that the improvement was less permanent, as twelve of the former and but six of the latter were re-admitted to the hospital. The principal reason of this fact I regard as the difference in the exciting causes sufficient to produce insanity in the two classes, as well as the impossibility of removing the inherited predisposition to mental disease in the first class. And even when a cure is effected in the former, that is, when the brain is restored to its normal action, some slight excitement may at any time disturb its equilibrium, while in the patients not hereditarily predisposed, if the brain can be restored to its normal condition, it is able to resist an exciting cause, that would be sufficient to again disturb a naturally defective organ. The number of deaths were nearly the same in both classes. The causes of death call for no special explanation, excepting case 13 of Table VI, where suicide by hanging caused death by strangulation. The average time in asylums of those discharged "recovered" was considerably longer in the former class. The only explanation of this fact that I can advance is the relative recuperative powers of a naturally healthy and a naturally weak organ just as a pair of naturally weak lungs are longer in completely

recovering from an attack of pneumonia or bronchitis, than vigorous, healthy organs. According to the tables, a larger number of the second class become permanent charges of insane asylums, as five of the former and eleven of the latter at present remain in the asylum.

The conclusions drawn from the tables are that patients with an inherited neurosis have a greater chance of a first discharge than others, but that they are more liable to relapse, owing to an inherited unstable nervous system.

Treatment.—The preventive treatment is generally in the hands of the general practitioner, hence a knowledge of the manifestation of the disease and the treatment adopted after the case passes out of their hands into that of the specialist in some hospital for the insane cannot fail to be of interest. Preventive treatment should commence with infancy and extend through life, and should aim to meet the following indications:

First. Improve the general health.

Second. By judicious training strengthen the mental faculties, the better to enable them to resist disease.

Third. Guard against excesses and abuses, especially of the sexual organs.

Fourth. Place them in positions where they can avoid all sources of excitement and excessive mental work.

To improve the general health, which (as has already been stated), is generally impaired, is of the greatest importance, as just in proportion to the improved health is the nervous system able to resist disease. Of all the means at our command to improve the general health of a nervous child nothing can compare with plenty of pure air, out-door exercise, and plain, unstimulating diet, as may be seen in the improvement in appearance, appetite, vigor and spirits of a nervous city child on returning from a summer vacation in the country; and even later in life, when from close confinement and overwork the general health becomes impaired, what can compare with a country vacation for the class that cannot afford the luxury of foreign travel?

The mind may be strengthened, and better enabled to resist disease by a careful training during the period of development, while the character is being formed. The greatest care should

be exercised in selecting associates, teachers and schools for the persons predisposed to mental disease. The ordinary boarding schools (especially for females), would seem to be about the most objectionable that could possibly be selected. In proof of this assertion, notice the anæmic, and at times neurasthenic condition of the average female graduate. A school should be selected in a healthy locality, where due regard is paid to physical exercise, with positive instructions not to allow over-study. For the children of the poorer classes who attend school at intervals only for a few years before they are called upon to assist in the support of the family, the public schools afford the only means of acquiring even a rudimentary education. Previous to the ages when children are sent to school, in fact from the earliest manifestation of the emotions and passions a careful watch should be exercised, to avoid all causes of excessive emotional outbreaks, and firmly checking them when displayed without cause. Even in very small children bursts of passion can be controlled by firmness on the part of parents, which, if yielded to might lead to a life of misery and mental disease. "The habit of yielding to a natural infirmity of temper often leads into paroxysms of ungovernable rage, which, in their turn, pass into maniacal excitement."*

The abuse of the sexual organs I believe to be more frequently indulged in, and more serious to the mental health of nervous children than others, hence great care should be exercised in excluding every cause tending to stimulate the sexual passions; obscene literature, improper associates, stimulants and sedentary habits should be carefully guarded against. A plain statement on the part of the parents or physician as to the true functions of the organs of reproduction and the dangers to health and happiness following their abuse should be enforced. Every cause calculated to unduly stimulate or to direct the attention of an excitable youth to the genitalia should be guarded against.

To place persons predisposed to insanity in positions where they can avoid excessive mental work and sources of dangerous excitement, great care should be exercised in the selection of a trade or profession. No rules governing every case can be laid

* Carpenter's Physiology.

down; as no two persons are exactly alike, so every case must be made a special study of, and every possible influence bearing on the case must be taken into consideration in making a selection. It is safe in every case, however, to avoid callings requiring severe continued mental work, or one subject to great uncertainties and sudden reverses. In fact, the quieter such persons pass through life, and the more they avoid all sources of excitement, the greater are their chances of passing through life without any manifestation of insanity.

The curative treatment is usually administered in hospitals for the insane, as but a very small percentage of cases amenable to treatment could possibly be treated at home, owing to the acute nature of the symptoms. The treatment is necessarily very different even in similar forms of insanity, owing to the difference in the general health, age, etc. The same general principles which govern the treatment of diseased conditions in other organs should be carefully observed. Congestion is to be relieved. In anæmia, food and medicine calculated to improve the quality of the blood are to be prescribed. One of the chief duties of the general practitioner when called upon to examine an insane person is to decide whether home treatment, or removal to an asylum is to be recommended. As a rule, a removal of the patient from home and friends is to be advised, as they not infrequently have some delusions regarding some member of the family or dear friend, whose constant presence and efforts to alleviate the sufferings of the patient are misconstrued into evidences of their insane imaginations. I have seen a number of patients admitted to asylums hopelessly insane, who, by a timely removal to some retreat would undoubtedly have recovered. The mistaken kindness of keeping insane persons at home has protracted or prevented many a cure. Any physician who has been called upon to treat many cases of acute melancholia will bear me out in this statement, when he recalls the difficulties he encountered in attempting to administer food or medicine to these patients, surrounded by sympathizing friends, and should a patient refuse food entirely, and the use of a stomach tube become necessary, it would be almost impossible in some families to get the necessary assistant to perform even this simple oper-

ation. The danger of homocidal or suicidal tendencies developing must be taken into consideration. From what I have seen of insane persons outside of asylums, especially among the poor, I have become satisfied that the chances of recovery are far greater in asylums than at home. It must also be remembered that the blood relatives of a person suffering from an inherited disease are themselves tainted with the same affection, hence the dangers to them of home treatment must not be overlooked in deciding upon the course to be pursued. The annoyance and danger to society of a raving maniac, making night hideous with his cries, and day dangerous by his effort to carry out some homicidal delusion is also a very important factor to take into consideration, and it not infrequently transpires that society, recognizing these dangers, enter complaint and cause an investigation into the sanity of persons, against the expressed wishes of their friends. There is one important factor in the treatment of the chronic insane with considerable physical strength that is not sufficiently called into requisition, viz., active out-door exercise. I have noticed that patients who are daily employed in out-door work almost invariably improve while thus employed. I called attention to this fact in an article on "Masturbation Among the Insane," in the October (1879) number of the *Journal of Nervous and Mental Disease*, as follows: "Exercise carried to fatigue I regard as an important element in the treatment; daily out-door employment should be insisted on if practicable. Several patients of this class derived marked benefit last summer while digging a long ditch; the work was laborious, and while it prevented masturbation during the day, it produced such fatigue that they were glad to rest at night."

Since then I have had abundant opportunities to notice the good results following out-door employment in all forms of chronic insanity when the physical condition would permit its employment. A year ago about thirty patients were employed nearly four months digging trenches for a sewer over four miles long. At present, twenty-five patients are daily employed in excavating on the site for the new Cook County Infirmary. Patients with chronic mania of many years duration, in whom the prognosis as to recovery was regarded as very unfavorable,

have been discharged as recovered after several months of active out-door employment. One of these cases was quite remarkable, and is briefly reported.

Case VIII.—J. K., aged twenty-eight years, admitted February 18, 1873, entered in the register as "mania," was for years the most unmanageable patient in the entire institution, and dreaded by the attendants on account of his violence and great strength. After a few years he settled down into chronic mania of rather a violent type, in which condition he remained without any apparent change until the summer of 1879, when he worked steadily for four months digging a ditch. While thus employed he commenced to improve, the improvement continuing the following winter, and he was discharged recovered April 24, 1880. When I last heard from the patient, about six months ago, he was working every day, enjoying excellent general health. A number of equally interesting cases could be cited if space would permit.

Insane persons on arriving at the asylums as inmates are usually carefully examined, and everything with which they could injure themselves or others is removed. They then take a bath, after which they are classified, or in some institutions sent to the ward for new patients. In this institution the patients are classified into eight grades (some hospitals have more), ranging from the convalescent ward to the ward for chronic dements. While it is true that "asylum life as at present constituted is unnatural, narrow, barren and mechanical," yet the asylums of the country afford places of shelter and safety to many thousands of diseased and troubled minds which it would be impossible to care for at home, and let us hope that the day is not far distant when the system for caring for the insane shall be so improved as to realize the highest ideal possible of attainment.*

* See Dr. Dewey's article on "The Present and Prospective Management of the Insane."—*Journal of Nervous and Mental Disease*, 1878.

ARTICLE II.

LARYNGEAL HÆMORRHAGE. By JEFFERSON BETTMAN, M.D., Acting Resident Medical Officer to the Throat and Chest Hospital, Golden Square, W., London, etc.

On account of the meager literature on this subject and the undue importance which could easily be attached to such a symptom, the cause remaining unrecognized, the following case, which lately came under my observation may not be without interest or devoid of some practical bearing.

Mrs. C. B., aged forty-five, a widow, mother of four children, has enjoyed, up to recent date, comparatively good health being troubled only now and then with attacks of rheumatism. She is more or less subject to colds and during the past few winters has suffered from cough with little expectoration. Family history good; parents died at a ripe old age; children healthy; husband was killed at a railroad accident. Her present illness began a week ago, and, according to her statements, seems to have been brought on by exposure to a draught. The following day she experienced a feeling of heat and slight constriction in the throat. Her voice became husky, a short, hacking cough set in. During the course of the next few days these symptoms were aggravated; her throat and chest became very painful, cough very harassing with little or no expectoration. On the eve of the fifth day, during an almost suffocating paroxysm of cough, she suddenly began to expectorate blood, which though at first small in quantity gradually increased in amount and reached, according to her statements, in the aggregate during the same night to more than half a teacupful. She now felt an intolerable burning in the throat, to use her own expression, "as if something were passing down the wrong way." Matters only became worse; she continued to expectorate fluid blood, grew feverish and quite weak.

Status præsens. Patient seems poorly nourished and is in a pale, anæmic state. Breathing not perceptibly disturbed, voice is almost aphonic and conversation can only be carried on with visible exertion. Complains of tickling in the throat and a burn-

ing pain over the sternum. While interrogating her, patient had a violent attack of coughing, explosive in its type. During the paroxysm she coughed up about half a teaspoonful of blood. I thus had opportunity to study the true character of the expectoration. It consisted, excepting a few dark brown crusts, of pure, fluid blood, bright red in color. Pulse slightly accelerated, temperature normal. After careful examination the thoracic organs were found to be healthy. Rhinoscopic examination both anterior and posterior revealed nothing abnormal. Mucous membrane of mouth and naso-pharynx, pale and glistening. Patient was very nervous and the throat so irritable, that I succeeded only after repeated attempts in getting a satisfactory view of the larynx and trachea—amply sufficient, however, to remove all doubts regarding the cause and true state of affairs. The entire laryngeal mucous membrane and that of the trachea as far as I could see, was uniformly congested, deep red in color and here and there covered by small dark brown crusts. The vocal cords were very hyperæmic, the free borders very much thickened and slightly irregular. Arytenoids and inter-arytenoid fold were involved in the intense congestion. The ventricular bands however presented the interesting and main feature of the case. They were almost livid in color, very much thickened, overlapped in part the vocal cords and completely obliterated the ventricles. They were in part covered with fresh and dried blood. With a good light, the superficial vessels of the congested mucous membrane could be easily seen as dark tortuous lines converging toward two bleeding spots seated symmetrically on the lateral surfaces of the ventricular bands. These spots were indicated by two small coagula, the size of split peas. Epiglottis congested, crest slightly thickened.

Diagnosis. Acute laryngo-tracheitis, rupture of small vessels and subsequent hæmorrhage from ventricular bands.

Tveatment consisted, locally, in a light application of nitrate of silver (fused on a laryngeal probe) to the bleeding spots. The main treatment, however, was directed toward the "fons et origo mali"—the laryngo-tracheitis and consisted in mild laxatives, inhalations of vapor of benzoin, pellets of ice and a cold water dressing to the neck.

The application of these remedies was followed by great and rapid amelioration of all the symptoms. Two days later I again saw the patient. There was great improvement in her general physique; cough, though still present, was much less troublesome; all bloody expectoration had ceased. With the aid of the laryngoscope, the cords were found much less injected, the ventricular bands reduced in size and the sites of the former hæmorrhages occupied by two small, white eschars. She rapidly recovered and about a fortnight later had regained her normal voice; the larynx, barring a slight congestion of the mucous membrane, had taken on its natural appearance.

Laryngeal hæmorrhage, due to direct traumatic influence, is not, an uncommon occurrence and many instances have been recorded. It can be easily understood how foreign bodies inpacted in the larynx or trachea can produce hæmorrhage by lacerating the tissue. Gross* has recorded such a case, where a boy, aged three years, received into his air passages a peice of bone and suffered at imtervals during a period of sixty years, from hæmoptysis, cough, dyspnœa etc. The same condition may arise after wounds or bruises of the larynx and several observations are cited in literature where hæmorrhages were induced by ulcerative processes. In a case of Tuerck's† syphilis of larynx, the bleeding had a fatal termination. The extensive ulceration involving the right sinus pyriformus not only exposed the greater corner of the hyoid bone, but produced erosion of the lingual artery with above mentioned result. Independent of any extraneous causes or ulcerative action, laryngeal hæmorrhage is of rare occurrence. I of course exclude all cases of hæmorrhage into the submucous connective-tissue, occurring occasionally in variola hæmorrhagica (Bogros‡) and scorbutus (Ruehle§) and limit myself entirely to such complications as arise during the course of an acute inflammatory congestion. In the case under discussion the sudden onset of a bloody expectoration in an acute laryngitis is as rare as its individual features and clinical history are interesting.

* "Foreign Bodies in the Air-Passages" p. 172, Phila., 1854.

† "Klinik der Kehlkopfkrankheiten" S. 402.

‡ Vide Sestier, "Traité de l'angine laryngée œdémateuse" pp. 63 and 114. Paris, 1852.

§ Kehlkopfkrankheiten S. 172.

The symmetrical position of the bleeding spots is probably due to the fact, that during the paroxysms of cough, the swollen and congested ventricular bands were tightly pressed against each other, an erosion of epthelium followed by rupture of the turgescent vessels and subsequent hæmorrhage. The trickling of blood into the larynx proved a fresh source of irritation, provoked increased cough; this again favored great congestion with subsequent hæmorrhage and thus a sort of vicious circle was established.

Semelder* has recorded a very interesting case of laryngeal hæmorrhage setting in after violent emesis. He found a mottled appearance (submucous extravasation) of the vocal cords and a small bloody coagulum seated on the anterior extremity of the right ventricular band. He also attributed the sudden hemorrhage to a rupture of congested vessels, induced by the muscular strain during emesis. Navratil† has described a case under the name "chorditis hæmorrhagica." Here the hæmorrhages took place on the upper surface of the cords and after removing the dried crusts the underlying cord was found red and swollen. Lewin‡ has made a similar observation. Mandl§ has seen a hæmorrhage proceed from the ventricles of Morgagni in the case of an old lady suffering from laryngitis. A few years ago Fraenkel‖ published another example of this rare occurrence. He applied the title "Hæmorrhagic Laryngitis" to it, but I fully concur with Dr. Mackenzie¶ "that it is scarcely necessary to give a special name to so rare and accidental a condition." In Fraenkel's case there was also great stridor and dyspnœa and, as he himself adds, in such a case a correct diagnosis could be established without the aid of the laryngoscope.

While in Vienna, another case of laryngeal hæmorrhage came under my notice. The patient had been under the care of Prof. Stoerk for some time. A large papillomatous excrescence had developed on the posterior laryngeal wall, a little below the level of

* Laryngoskopie, Wien 1863 S. 33.

† "Laryngol Beiträge" Leipzig, S. 18.

‡ "Inhalations therapie" S. 328.

§ "Maladies du Larynx" p. 644 Paris, 1872.

‖ "Berliner Klin. Wochenschrift" No. 2, 1874.

¶ "Diseases of Nose and Throat" vol. I. p. 268.

the arytenoid cartilages. The patient as yet presented no sign of pulmonary complaint, still the appearance of the growth and its more characteristic position, was simply sufficient to establish a diagnosis of incipient phthisis (Stoerk*). I followed the case with interest and the Professor kindly placed him under my personal care. One morning the patient looking pale and anæmic came to the clinic and gave the following account: During the night he had a violent fit of coughing; suddenly he felt the sensation "as if something had given way" in his throat, this being followed immediately by a little gush of blood. I immediately examined him with the laryngoscope and was not a little surprised to find a state of affairs, varying considerably from that existing heretofore. The former round, granular looking excrescence was now cleft longitudinally and on the patient's inspiring deeply I found that the fissure extended through the greater part of its substance. The cords, ventricular bands etc, to all appearances perfectly normal, were here and there covered with blood. This condition, occurring inter-arytenoid, has been lucidly described by Stoerk under the title "Fissura Mucosa."†

The fissure was thoroughly cauterized with argentum and all hæmorrhage ceased. It is further interesting to add that a few months later, physical diagnosis disclosed infiltration of apex of right lung.

These excrescences are generally quite firm in consistence, its German term "Schwielen" being quite expressive, and it can be readily comprehended how, during an attack of coughing, its stiff unyielding substance had suddenly given way to the great muscular strain of the underlying laryngeal muscles.

The quantity of blood expectorated in laryngeal hæmorrhages must necessarily vary according to the gravity of each case. In the one published by Fraenkel, the patient at one time coughed up a cupful of blood. In my case the quantity was much less, still the continuous oozing during three or four days was enough to seriously debilitate her.

These cases are however exceptional and judging from the few observations on record, the prognosis as a rule is favorable as

* "Klinik der Krankheiten des Kehlkopfes" Stuttgart, 1876.

† Virchow's Archiv Bd. lx.

regards life. In the more aggravated forms such as in Fraenkel's and Lewin's cases where there was great stridor and dyspnœa, the gravity of the condition is naturally greatly enhanced. Local treatment must consist in application of styptics, or, in severe cases, of caustics to the bleeding points. Ice is a valuable adjunct in the treatment for it not only assists in constringing the vessels but acts very soothingly in reducing the pain and heat of the parts. As mentioned above, the main treatment must be directed towards the cause of the hæmorrhage; if (as it is in the majority of cases), due to acute congestion or inflammation of the larynx, it should be treated accordingly. In the very grave forms where all other resources have proved of no avail, and the stridor and dyspnœa is so great, as to call for rapid action, surgical interference is no doubt indicated. J. B.

I am under great obligations to Dr. Morell Mackenzie, who in this as in former occasions has kindly permitted me to avail myself of his clinical material.

EPILEPSY WITH MANIA CAUSED BY MASTURBATION.

The patient, a girl sixteen years of age, had healthy parents. The labia majora and the introitus vaginæ were enlarged. The menses had been regular. She was found on the street in convulsions, the pupils enlarged. At night she would scream at the highest pitch of her voice, and she said that an alligator was approaching her and about to devour her. She was often unconscious for two hours. After that she had maniacal attacks, and tried to kill everybody present. She moved slowly, and voided the urine eight to ten times a day. At last she was sent to an insane asylum. The physician, who watched her closely, discovered that she masturbated, and she confessed that the attacks had come on after each masturbation. She consented to have her hands secured at night, and the nurse watched her closely in the daytime. After three months she was dismissed entirely well, and comparatively cured of the vice of masturbation.

Notes from Private Practice.

ARTICLE III.

SYPHILITIC CASES FROM PRIVATE PRACTICE. By P. O'CONNELL, M.D.

The following short notes may help to show how erratic and uncertain, as regards time, may be the manifestations of syphilis:

On December 14, 1874, Lilly Mary T., aged fourteen days, at whose birth I attended, and who was free of disease until now, came under my care for impetigo syphilitica. Her mother had had treatment during utero-gestation, though ignorant of her disease, owing to my having seen some condylomata about her mouth one year ago. The father, too, was regularly under treatment and observation. Inunction alone was carried out on the child, and by January 6, 1875, was again well. When just a year old I vaccinated her, and the vaccination was perfectly normal. In February, 1877, she had scarlatina simplex. From December, 1874, to July 4, 1878, when I prescribed for syphilitic headache, there was no evidence of the disease.

On February 11, 1877, and again on October 3, 1879, I delivered the mother, on each occasion, of a living daughter, free of all evidence of the disease. From September 14, 1875, to February 25, 1881, there were no manifestations of syphilis in the mother. Meantime the father continued to manifest the disease from time to time, although under treatment.

Four years after birth the second child showed the first lesion —a roseola syphilitica. At the same time the father had a "skin rash." My information is now obtained from a letter written by the father to me.

The father got his pox about New Year's, 1872. While suffering from the primary lesion, and being under promise of marriage, some wretched man, so-called a physician, advised him to fulfill his promise. This he did, and, within a year, his wife gave birth to an infant, with all the evidence of the disease, and which survived only a few days.

On September 7, 1874, John M., aged twenty-nine years, came under observation. He was extremely emaciated; both legs were quite black; he could neither walk nor stand; hands and feet cold and blue; right eye protruded, staring, motionless—there is paralysis of the third, fourth, sixth, and portio mollis of the seventh nerves; pupils dilated and fixed; speech long, slow, difficult. Was delirious most of the time, especially so at night, when he attempted to walk about. When upright, he walks a few steps, staggers, and falls heavily, where he remains until raised. He falls out of bed on attempting to get out of it. No sensation in the rectum; no control over the sphincters. Is the picture of wretchedness.

Inunction and iodide potassium, with good diet, including whisky, constituted the treatment. By September 30, the eye was retracted and movable; hearing good. He was up and able to move about the house, and could converse freely. Was free of headache, which he says was intense.

The following facts he now communicated to me: He contracted his disease twelve years ago. About July 17 last left hemiplegia came on; he was insensible for three days, and speechless for three weeks. Had some half-dozen fits, the first in May of this year. Had headache for seven years, and always on the right side; it was extremely severe at the time I first saw him, he said. Perhaps this was due to morphia, which he got from a quack, who treated him before me.

His only remaining trouble now was the want of control over the rectum, which was not improved in the least. His appearance was vastly improved. At this stage I lost sight of him. But his mother, whom I met on the street, informed me that he went into the hospital for the bowel trouble; that all his symptoms rapidly recurred and ended in his death in the hospital on

November 25, just two months from the time he stopped my treatment. There was no autopsy.

On August 8, 1875, I saw Mrs. K., aged forty years, and married to her second husband, by whom she was infected, nearly eight years. Since the birth of her last child, four years and three months ago, she has been in bad health. She is aware of the nature of her disease, and says the first lesion noticed by her was sore throat four years ago. Two years and two months ago she got cranial nodes; one and a half year ago some dead bone was removed from the forehead; one year ago some dead bone came away from the left supra-orbital ridge; five months ago resection of the right elbow was performed for caries of the olecranon. There is pain, tenderness and swelling over the nasal bones, and three nodes (soft) on the skull. Nocturnal headache preventing sleep. The thyroid is uniformly enlarged to the size of an ordinary orange, very hard, closely grasping the trachea, rendering respiration very difficult—markedly dyspnœal and stridulous. The trachea is quite tender under the gland. The enlargement began soon after the sore throat was noticed, and has steadily increased since.

Tincture and liniment of iodine, equal parts, externally, and liberal doses of iodide potassium internally, quickly reduced the gland, and I lost sight of her. But I learned on reliable authority that she died of intra-cranial syphilitic disease in 1879.

On February 11, 1876, Thomas G., aged forty-seven, in apparent excellent health, consulted me for a "sore on his arm." He has a papular syphiloderm across the forehead close to the hair, with a few papules near the eyebrows, and three most characteristic rupial sores on the outer side of the right forearm just below the elbow. He has not the most remote suspicion that the present "sore on his arm" and frontal rash are syphilitic.

On closely questioning him, he said he had venereal sore (character unknown) first and last in 1850, or twenty-five years ago. It was treated by caustic of some kind and quickly healed. He positively and emphatically asserts that he had no lesion since of any kind. Green iodide mercury, gr. 1 in pill, every night for a short time, followed by corrosive sublimate and iodide potassium completed the cure by March 13.

Annie G., daughter and only child of the above, aged eight years, a strong, hardy, active, and hitherto healthy child, suddenly sickened at 5 p. m. on November 23, 1873, with severely acute occipital headache, which soon became general. Active delirium, with very severe and prolonged convulsions set in, followed by effusion and death in thirty hours. No autopsy. The sudden onset of the fatal meningitis, for which no cause could be found, puzzled me much. Now I assume, rightly or wrongly, that syphilis caused it.

Mrs. W., aged thirty-five years, infected by her husband eight months ago, came under my care on April 26, 1876. During the six weeks following the date of infection, she said she had chills and fever by day, and especially at night, and a "very disagreeable, nasty looking rash," which, from her description, would seem to be ecthyma. Then followed chancre on the genitals, when the chills and fever ceased. Sore throat followed. A great deal of the hair of the head, and some of her fingernails fell off. Then came vulvar condylomata, which healed one month ago. Had had treatment. On the right olecranon is a superficial rupial scab, from under which flows a stinking sanies. Her chief complaint is of a terrible headache for a month, with "giddiness and lightness," and a fear of becoming insane. Knows the nature of her disease. Prescribed green iodide mercury, corrosive sublimate and iodide potass. during May and June. She proved to be pregnant at this time, and took, during her pregnancy, on and off, a mixture of iodide potassium, corrosive sublimate and tinct. cinchonæ flav., and was delivered, on January 18, 1877, of a boy nine or ten pounds' weight, and free of any sign of syphilis. On July 30, 1878, I prescribed iodide potass. for the child, who was cross, restless, cried at night, and did not sleep until early morning. After this he was quiet, rested and slept well all night. He improved in health and appearance, and was, seemingly, well by August 29. His canine teeth were characteristic of hereditary syphilis.

Early in June, 1876, I attended Mrs. C., aged thirty years, for a miscarriage, at seven and a half months' gestation. The fœtus had been dead about two weeks before expulsion, and I did not see anything special on its skin nor about the mother to at-

tract notice. On December 14, following, she manifested undoubted syphilitic skin-rash. In March, 1880, she had a living child, at term, without manifest disease. I prescribed hydrarg. bi-chloride during pregnancy. On August 14. I saw her husband with a syphiloderm. He drank a great deal, and had "delirium tremens." He was very careless in carrying out treatment, now and then pushing drugs in a reckless and dangerous fashion. I found it impossible to keep him under steady observation, months sometimes going by without seeing him. Once, while suffering from pain in the head, and in a large tibial node, at night, he took forty-five grains, thrice daily, of iodide potass. for some months. Seeing he could not continue it, and growing worse, he called on me, when I found severe iodism, very naturally. A subperiosteal abscess formed on the tibial node. This I opened, after which it quickly healed. Finally, I lost sight of the man. He eventually died on December 2, 1881, from some intra-cranial mischief, no doubt syphilitic.

Some high authorities, Fournier, for example, tell us that corrosive sublimate, the form which I prefer and usually employ, disagrees, is badly tolerated, or is positively injurious in pregnancy. In my experience (not very small) I find it not only does not increase the anæmia of pregnancy, but, on the contrary, obviates it. Neither could I see that mercury, in any form, internally, caused or increased gastric troubles. I never hesitate to prescribe the metal for syphilitic pregnant women. And I am satisfied that a careful use of it is the best protective against miscarriage such women possess.

SIOUX CITY, IOWA.

ARTICLE IV.

PROGRESSIVE PERNICIOUS ANÆMIA.

HARMON LEE CO., ILL., AUG. 3, 1882.

EDITORS CHICAGO MEDICAL JOURNAL AND EXAMINER: — The wife of Dr. Wm. Henry, after parturition, had no hæmorrhage more than an ordinary case of labor. The lochia the same as usual; perhaps a little more than the average, but not enoug

to destroy the blood-making power. The extremities became œdematous; the color left the body; three weeks before death she looked as bloodless as a corpse. The ears were bloodless, and a gradual weakening of the powers of life came on. Sometimes a peculiar mold would come on the surface, which could be rubbed off, leaving under it on the skin a greenish-yellow color. For two weeks previous to death she had constant nausea, and sometimes vomiting. There was complete anorexia; no relish for food, but she had a great relish for ice and ice-water. No remedies that were used seemed to do any good, as in ordinary anæmia. I used tonics, diuretics, preparation of iron; but all to no purpose. She seemed to die of slow asthenia. The disease progressed in spite of all treatment. From the description Dr. Henry Hartshorne gives of that disease in Reynolds' System of Medicine, this seems to be a clear case of progressive pernicious anæmia. During the whole time there was no perceptible rise in temperature, nor much increase in the circulation; nothing but a gradual changing of the blood to water. The urine was about normal in quantity; sometimes light in color; at others dark. The bowels were constipated at times, and at others regular. The spleen and liver seemed somewhat enlarged; tongue pale, as in ordinary anæmia.

At times she complained of a sound in her head as if it were water, with strange noises. No emaciation of the body, but it seemed as plump as in health. Her babe was eight weeks old when she died; it is still living and doing well.

WM. HENRY, M.D.

THE following is the arrangement of the staff of the Woman's Hospital of the State of Illinois since the recent reorganization:

Dr. W. H. Byford, Dr. J. H. Etheridge, Dr. Daniel T. Nelson, Dr. H. P. Merriman, Dr. E. O. F. Roler, Dr. E. Warren Sawyer, Dr. A. M. Davenport.

Consulting Physicians. Dr. J. Ramsey Flood, Dr. D. R. Brower.

Society Reports.

ARTICLE V.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, July 17, 1882, Dr. J. H. Hollister, President, in the Chair.

INSANITY—TETANUS.

After reading and approval of the minutes of the last meeting, Dr. C. T. Fenn presented a cranium, an inferior maxillary bone, and a rib from a man who died insane, and presented the following history:

Ashbel D. was born of Puritan ancestry, in Cornwall, Conn., about 1796. He died in Tallmadge, Ohio, in 1878, æt. about eighty-two. In his younger days he possessed a comely person, pleasing manners, and a fondness for society. He was a saddler and harness-maker, industrious and thrifty, especially neat in his dress, and of good morals. He never married. D. first came to Ohio on the early settlement of the Western Reserve, about 1823, working at his trade, but after a time he returned east as far as New York.

He loved and was rejected; an authentic incident of that period. It is known, also, that she who was the object of his affection was applied to by several men, but adhered to her early determination, and remained single. She is living, at the age of eighty-five.

A history of hereditary insanity was not ascertained. After his love disappointment, he took to drinking, and had delirium tremens, after which his health seemed impaired, and he took to traveling, and his mind wandered from that period.

When forty-six years old, he returned to Ohio. He now appeared an old man. His hair was thick and gray, his face wrinkled, and his keen black eyes wore a peculiar expression characteristic of the insane. His body was spare, of medium height, straight, lithe and active. He died in the same house whose hospitality he never lacked, but from which he often wandered to great distances. He made his journeys on foot, alone, refusing offers to ride, and not partaking of food. He endured fasts, and unfriendly heat and cold without complaint. His circuit was gradully fixed, covering three or four counties, in which he had perhaps as many rural haunts, finding in each a temporary home, unwelcome to any with whom he might claim kinship. His advent was not entirely unwelcome in the busy season, for he was inclined to be industrious and useful. He was fond of attending to fires, had a special aversion to sponging, and could not bear restraint, but would leave. He generally went off by night, without notice, and without preparation, returning after a few weeks or months, as the case might be, in the same surprising manner.

He was prone at twilight, or in darkness, to drum with the back of his right hand on tin pans held in his left, going some distance from the house to perform. His knuckles were constantly abraded on that account. His aim was to frighten away spirits who were after him or tortured little children. He had hallucinations of sight, as well as of hearing. His apparel was sometimes highly fantastic. Seemed never to have had any disease except what was alluded to above. Seemed to have been temperate subsequently to his attack of delirium tremens. He chewed excessively, but after awhile forgot the use of tobacco also.

During the last years of his life he became steadier and quieter, and could talk rationally for long periods at a time. It seems that he was a Christian, and at times he had been extremely profane. Dr. S. S. Wright, of Ohio, gives the following notes of the autopsy:

The vessels of the brain were all full of blood. There were slight adhesions of the pia mater between the convolutions, and a little pus on the surface of the cerebellum. A curious loop of

blood-vessels extended along the floor of each of the lateral ventricles, plexus-like, and full of arterial blood, bound by delicate fascias. There was some softening of the brain, and a few brown spots on the vertex, like apoplectic marks. The size of the organ appeared normal. The stomach was softened and thickened, with about two or three ounces of muco-pus in it. There were evidences of congestion almost everywhere; in pericardium, lungs, peritoneum and intestines. Liver was very small and hard. Pancreas enlarged; spleen small and hard; kidneys normal. There was calcareous degeneration of the arteries.

Dr. Fenn remarked that Ashbel's skull appeared symmetrical and normal at first, but, on close inspection, it was found that the calvarium was quite thick, somewhat asymmetrical, and that the cranial sutures were all strongly ossified. Looking at the skull from above, there was a marked want of symmetry within it, the right side being fuller, and five-eighths inch larger in diameter than the opposite side. Looking at it externally, there was a marked flatness of the left side. Looking at the petrous portion of the temporal bone, the internal auditory foramen on the left side was half an inch nearer the median line than on the right side. The left jugular foramen was three times larger than the opposite one.

Dr. J. H. Hollister related the case of a murderer, who had never been insane, but a violent man. His skull was fully as heavy and thick as the one under consideration. Looking at the petrous portion of Ashbel's skull, the doctor remarked that there was a deposit which showed long-continued malnutrition, if not an inflammation, of the endosteum. He believed that was calcification, not real ossification, which was an extremely rare occurrence. In was claimed by some, even in our day, that insanity sometimes took place without accompanying pathological changes. There were other cases in which all sorts of pathological changes would take place, and yet the patient remain perfectly sane. And between these two limits there were an incredible variety of cases. The subject was a delicate one. There were persons in whom a certain behavior would be considered a sign of mental aberration, which in others would be considered proper. As to the inheritance of the disease, he believed that after a certain age

was safely attained, there was no more hereditary tendency. He related the case of a man, a wonderful athlete, most muscular and sprightly, who fell from a rope and hit his head against a sidewalk. In a few weeks he became insane, and had to be kept in confinement for twenty-two years, dying at the age of seventy-one.

Dr. Fenn, in reply to Dr. Hollister, said that in the specimen in hand, the skeleton was remarkably light, with attenuation of bone. The pachionian bodies had almost worn through the skull, which was here no thicker than paper. The asymmetry of the skull was not necessarily an index of insanity. Said he: "I believe that classes of people by imitation will become insane, in the same way that epidemics of chorea occur." In times of political excitement people may be roused to murder, and that was an insanity of imitation.

A case had come under his observation, said Dr. W. H. Curtis, in which there was a deposit of bone 1x¾x⅛ inches in dimensions in the meninges of the brain. Whether it was caused by the insanity, or caused the latter, he could not say.

Dr. Hollister said an author claimed habitual congestion of the brain from alcohol as one of the most common causes of insanity, but, in the doctor's mind, a peculiar physical organization was necessary for insanity to develop. This consisted of an emotional nature, a high nervous organization, and a debilitated physique. In these cases, stimulants, sexual excesses, political or religious excitements would induce insanity. One present danger to the race was an excessive mental education at the expense of the physical organization. He had known of a family of five who were all insane in some way, though the father and mother possessed high mental refinement. He believed the progeny of several generations of people who had specially exercised their minds was liable to prove mentally debilitated, and this would perhaps apply to the royal families of Europe. In his experience, he had found that the business men of Chicago especially suffered from headache, and some had to leave the board of trade and take a vacation to relieve their minds. The doctor remarked that there was one day a week consecrated to mental rest, but that two days would be still better. He thought we

would have soon to return to the Roman system of physical education, specially in institutions for girls, for the crop of insanity in New England was fearful. He said a tendency to insanity should deter one from entering a profession.

TETANUS.

Dr. D. I. Scheppers made the statement that out of five cases of shot wounds following the fourth of July this year, he had had one case of tetanus; that the year previous he did not have one case of tetanus out of fifty cases of wounds; he wished to know the opinion of members in regard to the causes of prevalence of tetanus.

Dr. Kiernan said that the pathological results found in patients dead of tetanus were generally secondary, and that there was no invariable pathological change. He had met spurious cases where the mind of the patient was the only factor. There were regions, as Japan, Corea and Long Island, where the disease was of frequent occurrence. He had seen a case of tetanus in the new-born. In that case, the mother had been seduced, and afterward chased from place to place, and when the child was born, the least noise would throw it into spasms. Marked changes in the pachionian bodies had sometimes been found.

Dr. H. D. Valin referred to notes of epidemic tetanus in the translations of the June number of the JOURNAL, and mentioned the case of a patient in the County Hospital who had recovered from tetanus after stretching of the nerves.

Dr. Kiernan recommended the further use of conium in tetanus, and Dr. Hollister made the same suggestion, as that medicine had given him good results in infantile convulsions. He used the tincture, but Dr. Kiernan thought the tincture of conium was inert, and recommended the fluid extract.

ARTICLE VI.

CHICAGO PATHOLOGICAL SOCIETY.

Stated Meeting, July 24, 1882, Dr. H. M. Lyman, President, in the Chair.

SUNSTROKE.

Dr. H. D. Valin read the following notes on this subject:

In the *American Journal of Medical Sciences*, 1876, p. 265, an autopsy on a case of sunstroke showed that there was blanching of the various organs; the vessels were congested with dark blood; the brain and its meninges were anæmic, with ecchymoses of the blood-vessels. There was an excess of serum in the ventricles (Dr. Arnd).

According to Sir Jos. Fayrer, the various conditions ordinarily called sunstroke are of three kinds: "simple syncope from exhaustion caused by heat; a condition analogous to shock, due to the action of the direct rays of a powerful sun on the brain and cord; and overheating of the whole body from either the sun's rays or from the high temperature produced by them, causing high thermic fever" (*Med. Rec.*, Vol. XX, p. 334). In the last case, grave structural changes are produced in the nerve centers.

The *symptoms* are unconsciousness; a high temperature; stertorous breathing; pulse rapid and full, sometimes slow; convulsions and death. In simple prostration the temperature may be normal, and the skin may be cold and damp.

"Large cities afford nearly all the cases. In New York over 800 cases have occurred in a single week, in 1868" (Hartshorne's Essentials). Insolation is a common result of a sudden and elevated rise in the temperature, and is most common in day laborers, working in the sun, though cases occur indoors also, and even at night.

Prophylaxis.—No disease, probably, could be better prevented than this, if it were not for the cupidity which characterizes capitalists in general. The first precaution should be to stop work when the temperature is excessively high.

Treatment.—The patient should invariably be placed in the shade, near the spot where he fell, as removal under these circumstances is a dangerous procedure. He should be wrapped in a wet sheet continually sprinkled with cold water, and ice should be applied to the head. Small doses of whisky or brandy should be frequently administered, and some authors highly recommend a few ten grain doses of quinine. Mustard should be applied to the feet, and a purgative enema administered.

Drs. Tomlinson and Murphy, in *The Practitioner*, June, 1880, report marked success from the hypodermic use of apomorphia hydrochlorate, 1–16 gr., in three cases. Others have used atropia in the same manner. But these various treatments seem inferior in value to the use of the wet sheet. Brandy can be given hypodermically if the patient is unable to swallow. Cases where the temperature has been as high as 108 or 110 have sometimes recovered.

Sequelæ.—Dr. Fayrer remarked before the International Congress last summer, that complete recovery from sunstroke was rare, and that mania, epilepsy, or other nervous complaints were liable to remain for ever after. Cases of inebriety have arisen from sunstroke, while the latter is especially prone to affect inebriates. The following are enumerated by Beard and Rockwell as sequelæ to insolation: Spinal irritation; insomnia; neurasthenia; neuralgia; epilepsy; nervous dyspepsia; hysteria; paralysis and insanity, and they recommend general faradization, with central galvanization.

Most of the cases which I have seen were of prostration only, and brandy restored the patients. In two or three cases of congestion of the brain from heat, bromide of potassium in large doses gave a good result. It also proved useful in one case in which the temperature was high, and accompanied by delirium. In this case, although the patient recovered, the mind seemed to have been somewhat weakened, afterward.

One case came under my observation in which sunstroke was followed by hepatization of the right lung, deficiency of the mitral valve of the heart, and hæmoptysis. The patient has improved for about a year, and has gained flesh, but is not able to work.

Dr. Flemming had attended a case in the person of a fireman in an engine-room, who fell under the influence of heat, and was severely burned in his fall, but he ultimately recovered from both injuries. He had also seen the case of an officer in the army in India, who recovered from sunstroke, but was afterward insane. He advocated cold sponging, the internal use of ammonia, and believed that nitrite of amyl should be given a fair trial.

Dr. Tebbits said that he had treated a case of sunstroke in a team driver. He applied ice to the chest and head, gave a purgative enema, brandy hypodermically, and digitalis. The patient recovered, but an antecedent gastritis grew worse after the insolation, and did not heal for six months. He had another case in a foundry, where the patient was heat struck indoors. The same treatment resulted in his perfect recovery. The temperature of these cases had not been very high.

Dr. Meek related the case of a man who was sunstruck every summer for three years, and the affection had been followed every time by a few months of insanity. The patient was out of the asylum just then.

Dr. R. S. Hall remarked that when treating sunstroke, he applied ice to the carotids and to the wrists, in order to cool the blood more readily. He gave digitalis with bromide of potassium internally, and in case the feet were cold he placed them in hot water, or applied mustard to them if they were warm.

Dr. H. M. Lyman had some personal experience of sunstroke in 1878, a very warm summer. He was not in good health at the time, and had been deprived of sleep lately. After walking four or five blocks in the forenoon, he became affected by the heat. His temperature rose to 101; he experienced a great thirst, extreme weakness, a feeling of alarm or apprehension, and a blurring of the senses. After a few hours, he had dyspnœa, some difficulty in breathing, and was confined to his bed for several days. At first, cold Vichy water was taken for a drink, and small doses of whisky. When convalescent, sailing on the lake proved most beneficial.

The doctor remarked that most cases of insolation occurred in people who had not felt well for some time, or whose constitutions were below par. Sunstroke would not be likely to occur as long

as the perspiration escaped freely from the body, as this was a sort of regulating apparatus of the head of the person. He remarked that, as Mr. Dupuy had lately used ether in hypodermic injections in the collapse of cholera, the same might be tried in cases of depression from heat.

Dr. Lynan said that as vomiting and purging sometimes followed sunstroke, he thought this was especially the case in children, and that many cases of death were ascribed to cholera infantum, whereas they resulted from overheating. Claret wine in cold water was a good drink in those cases, and the white of an egg could be added to it. Removal to the country in such cases was a useful means of treatment.

Dr. Meek said that a few years ago, when sunstroke had prevailed in St. Louis, cigar-makers and others who worked in tobacco had been most readily affected, on the same principle, perhaps, that inebriates were so readily affected by the same causes.

Dr. Jos. Haven presented the heart of a male, aged seventeen, which was considerably hypertrophied. The mitral valve was insufficient on one side, and the disease had run its course, it seemed, in two weeks, ending with general œdema. The heart weighed twenty-one ounces. Deceased had never been strong.

ARTICLE VII.

ILLINOIS STATE BOARD OF HEALTH.

OFFICE OF THE SECRETARY, SHRINGFIELD, JULY 15, 1882.

DEAR SIR:—At a regular meeting of the State Board of Health, held April 13–15, 1882, the following resolution was adopted:

Resolved, That in order to protect the legal interests of survivors, to facilitate the detection of crime, and to secure fuller and more accurate knowledge of the causes of mortality, whereby preventive medicine and general sanitation may be promoted, the Illinois State Board of Health earnestly recommends to the proper authorities of all cities and towns in this State, having

populations of one thousand or over, the enactment and enforcement of a suitable ordinance requiring a burial permit from a designated official, and based upon the physician's certificate of death, *now required by the statute*, as condition precedent to an interment within, or removal of a decedent without, the corporate limits of any such city or town.

A form of such ordinance is herewith presented, and it is hoped you may be able to secure its enactment.

It should be observed that wherever such an ordinance is adopted, the certifying physician is relieved of the necessity of transmitting his certificates direct to the county clerk, but will simply return them to the designated city or town official, who will forward them to the county clerk after using them as the basis for the burial permit. This has been found to work well practically in places where burial permits are required. It helps to secure a more general compliance with the law requiring physicians to report all deaths occurring under their supervision, with certificates of the causes thereof.

The manifest object of the State law is to secure such knowledge of the causes of mortality as may lead to measures for removing or modifying such causes as are susceptible of removal or modification. This is of primary importance to cities and towns, since a reputation for healthfulness or the reverse undoubtedly influences the growth and prosperity of any given locality. By means of the burial permit and its record, the facts contained in the physician's certificate may be made immediately available for this purpose, while they cannot be where returned direct to the county clerk. From the "suitable book" prescribed in section 5 of the ordinance, a weekly or monthly report may be compiled for publication, either in the newspaper press or otherwise, and thus the condition of, and the influences affecting, the public health may be accurately judged at any given time, and comparison made with other localities.

Where burial permits are required—as they are in many places—the existence of a contagious disease—as small-pox, scarlet fever, diphtheria—has often first been made known by the information given in the permit, which thus serves to direct preventive measures for arresting further spread of the contagion.

On the other hand, in the absence of burial permits many evils arise, among which may be mentioned the fact that the bodies of murdered persons may be more easily disposed of. Within a very brief period three such instances have come to the Secretary's knowledge, where the bodies of the victims were buried without exciting suspicion. Accidental clues led to disinterment and discovery of the crimes.

Briefly, the reasons for the enactment of such an ordinance may be thus summarized:

First.—It will be of value in securing fuller, more accurate, and more readily available knowledge of the causes of death—a knowledge which is absolutely necessary to the profitable application of efforts for the preservation of health, the limitation of disease and the prolongation of human life.

Second.—It will be of value in the protection of life against criminal violence, by facilitating the detection of such violence through preventing the burial of victims of homicide, abortion, poisoning, etc., without proper investigation.

Third.—It will be of value in the protection of property interests, by making the facts pertaining to a death and burial matters of record which may be useful in probating wills, settling estates, determining heirships, perfecting letters, adjusting life insurance, and kindred matters.

For the foregoing reasons, your interest and influence in behalf of the measure are confidently anticipated.

Very respectfully,

JOHN H. RAUCH, M.D., *Secretary.*

AN ORDINANCE IN RELATION TO BURIAL PERMITS.

Be it ordained by the —— of the —— of, ——, in the county of ——, in the State of Illinois:

1. That no burial or interment shall be lawful in the —— of, nor shall any dead body be removed from said ——, until a permit for such burial, interment or removal shall have been first obtained from the —— of said ——.

2. That such permit shall be issued by the —— upon his receipt of the usual certificate of death, signed by (1) the attending physician in the case; or, if none, by (2) one of the parents

of the deceased; or, if none, by (3) the nearest of kin not a minor; or, if none, by (4) the resident householder where the death occurred; or, if none, by (5) any reputable citizen cognizant of the facts and circumstances of the death; or, if the death be the subject of an inquest, by (6) the coroner or other officer holding said inquest.

3. That any undertaker or sexton, and each and every other person engaged or concerned in a burial in violation of the provisions of this ordinance, and the officers and employés of any transportation company, or any other person or persons engaged or concerned in the removal of a dead body from said —— in violation of the provisions of this ordinance, shall be subject to a fine of not less than —— (—) dollars, nor more than ——(—) dollars for each offense.

4. That the —— shall enter in a suitable book, to be kept for that purpose, a record of all burial permits issued, specifying the date of issue and to whom issued, together with all the items of information contained in the certificates upon which the issue of such permits is based; and he shall forward to the county clerk of —— county, at the end of each month, all of said certificates so received during the month.

5. That this ordinance shall be in force from and after its passage and approval.

ARTICLE VIII.

MICHIGAN STATE BOARD OF HEALTH.

The regular quarterly meeting of the State Board of Health was held July 11, at the office of the board in Lansing, the following members being present: Leroy Parker, of Flint, president; Rev. D. C. Jacokes, Pontiac; Drs. Henry F. Lyster, Detroit; J. H. Kellogg, Battle Creek; John Avery, Greenville, and Henry H. Baker, of Lansing, Secretary.

SMALL-POX AT FLINT.

Mr. Parker presented an account of an out-break of small-pox, from which, and a report made by Dr. Lyster, who had visited

the case at Flint, it was determined that the first case was of a woman aged about fifty-five years, who traced her exposure to no other source than a peddler, supposed to have come from Canada, who had called at her house. Three weeks after the woman was taken sick, the daughter came down with the disease, and in three weeks more a boy, exposed by the daughter, was taken sick. This case was diagnosed as chicken-pox. The health officer diagnosed the case as small-pox, but met with violent opposition when he attempted to quarantine the family. Other cases appeared, called chicken-pox by some, and small-pox by others. Finally two physicians of Detroit went to Flint, and assured the citizens that the disease was small-pox, justifying the action of the health officer, who is now seconded in his efforts to restrict the disease. There are some fifteen cases of small-pox, and they are largely due to the willfulness of persons in trying to maintain that it was not small-pox, against the views of the health officer.

BUILDING INSPECTION.

Dr. Kellogg reported, as a member of the State Board of Health and State Board of Charities, relative to the plans for a dormitory and school at the reform school, detailing the changes advised in the plans to make the building more perfect in a sanitary way.

Dr. Avery, as a member of the joint committee from the same boards to visit the reformatory at Ionia, reported that the warden assured the committee that the changes they had advised in the shops now under construction at that institution would be carried out.

WORK OF THE OFFICE.

The secretary presented a detailed report of the work performed in the office during the last quarter, as follows: Much correspondence and hard work in starting the immigrant inspection service, which is now yielding valuable information, as well as aiding in preventing the spread of diseases. The inspectors at Port Huron and Detroit now make weekly reports to this board. Three cases of small-pox have been found on trains at Port

Huron, and many cases of measles have been found on trains between Port Huron and Detroit.

The various small documents printed by the board, for the prevention and restriction of diphtheria, scarlet fever, etc., and instructions as to the work of health officers in the restriction and prevention of various diseases, have been distributed to health officers throughout the State and a great many others, including masters and secretaries and lecturers of Michigan granges to the number of 840. These are sent in the hope that they will bring the subject before their organizations, and thus aid in disseminating information.

The returns of the names of 1,025 health officers in Michigan have been received, examined, and entered on the list, and a second demand sent for returns to such places as are yet dilatory. Correspondence has been larger than usual, on account of some new work in regard to immigrant inspection, etc.

A letter was read from the manufacturers of a nursing bottle which had been criticised by this board as poisonous, having a lead sinker attached to the rubber tube, stating that the objectionable feature would not hereafter be manufactured by them. They have substituted a glass sinker.

CONTAGIOUS DISEASES.

A letter was received from J. Heitmann, health officer at Jamestown, Ottawa county, stating that scarlet fever was introduced into that township by immigrants from Holland, and eight deaths had occurred.

The secretary mentioned a report that scarlet fever was communicated to a cashier in a bank at Sault St. Marie, by money received from immigrants passing through there.

Dr. Lyster reported an outbreak of diphtheria in the upper peninsula, the disease having been brought in by immigrants.

A *résume* of the work of other State boards of health was read by the secretary.

SANITARY CONVENTIONS.

An invitation for a sanitary convention at Reed City, signed by the editors, ministers, and doctors of that place, was accepted

conditionally. The time for the convention was fixed about the last of November. The board also voted to accept an invitation and hold a sanitary convention at Pontiac in January.

NATIONAL BOARD OF HEALTH.

The danger to public health interests, caused by insufficient appropriations for the National Board of Health, was considered, and telegrams expressive of the apprehensions of this board in case the work of the National Board of Health was crippled, were sent to Michigan senators, and the president and secretary directed to forward a memorial to Congress on the subject.

CHEMICAL ANALYSES.

Dr. Lyster introduced a preamble and resolution, which was adopted, as follows:

"WHEREAS, It is essential to the health and well-being of the people of the commonwealth that all articles of food offered for sale should be free from adulteration;

"*Resolved*, That this board have such analyses and reports made, by experienced chemists, on such articles of food as may be submitted to them by the officers of this board, and that such sum of money as may be required, not exceeding $150 for the year 1882, be devoted to the necessary expense of such analyses."

Dr. Baker offered the following, which was adopted: "That the secretary be authorized to have analyses made of tissues, secretions, and excretions of the human body, to aid in determining the causes of certain diseases, at an expense not exceeding $100."

Dr. Lyster, special committee to report on the present knowledge respecting the cause and prevention of typhoid fever, read the introduction to a paper on this subject, which was accepted with thanks, and he was requested to complete the paper for publication in the report.

The examination of candidates in sanitary science was postponed until the October meeting of the board, which will occur October 10.

ARTICLE IX.

THE TRI-STATE MEDICAL SOCIETY.—This flourishing association promises well for its next meeting. Sixty papers have been promised, and are now catalogued for publication. As each is limited to twenty-five minutes, and some will not exceed ten minutes in length, there will be time for all, for this society holds three working sessions each day, and has no time for banquets, receptions, etc.

The meeting for 1882 will be in Terre Haute, September 26, 27 and 28, and the railroads and hotels have promised to contribute to its success.

The rapid growth, and the good work done by this society, have stimulated the workers in the profession of Indiana, Kentucky and Illlinois, and in Cincinnati and St. Louis, to renewed effort. Hence its rapid growth.

Dr. T. M. Holloway, of Louisville, is President, and Dr. G. W. Burton, of Mitchell, Ind., Secretary.

The programme will be ready for notice in our September issue.

HERPES NIGER OF THE LABIA MAJORA.

The woman, twenty-one years of age, was at the end of her gestation. There was a gangrenous patch on the lower part of the abdomen, eight cm. long and six cm. broad, near the pubis. After parturition a high fever set in, the lochia being normal; pulse 140; no vomiting. On the right labium there appeared some spots of herpes, which extended all over the pubes in the next three days, the fever increasing at the same time. The vesicles contained a dark-colored fluid, and they were isolated. The gangrenous patch began to heal, but the herpes spread to the perineum. The patient died after six days.—*L' Union Médicale.*

Foreign Correspondence.

ARTICLE X.

VIENNA, JULY 3, 1882.

EDITORS MEDICAL JOURNAL AND EXAMINER:

The tubercle bacillus is still the lion of the day, and bacillus hunting the chief occupation of all interested in pathology. That the organisms are present, both in tuberculous tissues and tuberculous sputum, is universally acknowledged. Hitherto no one has repeated, so far as I can ascertain, Koch's experiments in cultivation and inoculation; and upon these rests of course, the asserted causal relation of the bacteria to the disease. Yet it is highly probable that in many German laboratories these experiments, necessarily slow, are being conducted. Indeed, Koch's previous work has been so thorough and unassailable, his conclusions so cautious and reserved, that no one is inclined to doubt his veracity or his judgment in the present instance. In a recent meeting of the Royal Society of Physicians here, Billroth proclaimed his acceptance of Koch's conclusions, observing, at the same time, that since the experiments of Villemin and others, he has been expecting the discovery of a vegetable parasite as the cause of the disease—since its infectious nature was by these experiments clearly proven.

Several vexed questions in pathology must now find an early solution. First, it must be already regarded as proven, that tuberculosis and consumption are, etiologically at least, identical. Niemeyer's famous remark—"The greatest danger for consumptives is that they may become tuberculous," may retain some clinical, but no pathological value. Again, we may perhaps now be able to prove, by the discovery of the bacilli in scrofulous

glands, the already highly probable identity of "scrofula" with tuberculosis. Lupus vulgaris, moreover, is by many ascribed to the scrofulous diathesis—indeed, I was told a few days ago that a Berlin pathologist has already found the bacilli in lupus nodules. We shall see. Clinically, Koch's discovery does not as yet promise much, except in the way of prophylaxis; that a child with hereditary tendency to consumption should avoid intercourse with individuals already consumptive, has been long known (though but little practiced); now, however, we know that infection can occur through the mother's milk; perhaps even from handkerchiefs and other articles used by a consumptive—and should act accordingly. Whether the earliest stage of the disease can be recognized by the microscope sooner than by the stethoscope, has not as yet been determined, though it seems highly probable, when one sees the myriads of bacilli in every drop of sputum from a patient who presents but limited areas of pulmonary degeneration. By the way, the detection of bacilli in sputum is much easier than in tissue; moreover, the experience of microscopists here, with which my own observation coincides, is that the organisms are more often found in cheesy degeneration than in the fresh miliary tubercle with its giant-cells. Koch, however, usually finds them in the giant-cells.

For the detection of the tubercle bacilli, the best method up to date is Ehrlich's, which has doubtless long ago reached you. Yet, as it requires considerable skill, and at least forty-five minutes' time, it is hardly adapted to general clinical use. Baumgarten has recently proposed a method which has the advantage of brevity—ten minutes—but the disadvantage that the bacilli are all but invisible. By Ehrlich's method the bacilli are distinctly visible with 400 diameters, and without the abbé's illuminating apparatus, oil immersion, etc., which Koch's original method required. Indeed, Koch himself now uses Ehrlich's method.

In the recent surgical congress at Berlin, Langenbeck arrayed himself among the defenders of iodoform, warning, at the same time, against the use of more than ten or fifteen grams on one individual. An interesting discussion of the pylorus resection followed. Of eighteen patients operated on for cancer, three

still live; one, a girl, whose pylorus was removed by Rydygier for cicatricial stricture after ulcer, was exhibited to the congress, in "blooming" health, as the report states. Billroth considered the operation in such cases justifiable, in opposition to Richter, who thought the time had not yet come for such a measure. Langenbeck had in one case removed the pancreas, with the adherent pylorus (result not stated, but easily imagined). Billroth expressed his surprise that so many cases had been already operated; thinks that but few cases (one in fifty or sixty) are fit for operation, because the diagnosis is made too late; has himself made twenty exploratory incisions, without operating—the exploration was in one case fatal. As to the technique, Billroth lays great stress upon an accurate adjustment of the edges of the mucous membrane, so that the intestinal and gastric contents shall not come in contact with the wound. He rejects catgut for sutures, because it stretches too easily; uses silk.

Sonnenburg exhibited a case of ectopia vesicæ which he had successfully operated by removing the bladder and sewing the ureter into the (open) urethra. Thiersch reported, in favor of his own method, that of twenty cases which he had operated in fifteen years, sixteen were healed; four died.

In Vienna, I have seen nothing of especial interest recently in the clinical way except two unpublished cases of Prof. Dittel's. In a case of very old and very obstinate cystitis, which had resisted all the usual therapeutic measures, Dittel made external urethrotomy in the membranous portion, introduced a catheter á demeure, and washed out with boracic acid solution. Within two months the patient went home with healthy urethra and bladder. In a litholopaxy last week Dittel introduced the No. 30 catheter for washing out the bladder. Five days later there was thrombosis of the dorsal vein of the penis, soon followed by chills, and by gangrene of the glans. Patient (man of sixty-four years) is expected to die in a few days of septicæmia. This is, I believe, the first "*malheur*" that Prof. Dittel has experienced in nearly a hundred lithotrities.

Billroth was recently invited to take Langenbeck's chair in Berlin. He promptly declined, and received, in consequence, an ovation from the Vienna students. First, a handsomely engrossed complimentary address was presented to him in the aula of the

university, in the presence of numerous professors and an immense audience; the same evening followed a torchlight procession by the students, including about 800 torch-bearerers, with band, glee-club, ferocious-looking "Burschen" in high boots, foxtail caps, and carrying drawn swords. On this, as on every other occasion where there is anything to be seen, the populace was out in force, crowding the streets for hours before the procession appeared. After a serenade, and a few cordial words by Billroth, the torches disappeared, and the bearers thereof spent the rest of the night in discussing the event, Billroth, and Pilsner beer.

The writer had the pleasure of meeting Dr. Allen, of Rush college, some three weeks ago. He and Mrs. Allen seemed well pleased with our old Kaiserstadt.

W. T. BELFIELD.

ARTICLE XI.

PRAG, JULY 3, 1882.

EDITORS CHICAGO MEDICAL JOURNAL AND EXAMINER:

Prag is undoubtedly so little known to the majority of your readers as a great medical center, that it deserves all the space I can devote to it in this letter. The University of Prag was founded by Charles IV in 1348, and is consequently the oldest in all Germany. His successor, Wenzel, desiring to limit the privileges of foreign students, many hundreds of them deserted Prag, and founded the University of Leipzig sixty-one years later. Beside being the oldest, it was for centuries the best attended center of learning in all Europe. During this time it had six thousand students and upwards, two thousand of these being in the medical department. At present it has, all told, about two thousand, four hundred of these being students of medicine. More than half of these are of Bohemian birth, and many speak no German at all. For these lectures in Czeckisch are given, there being really two series of parallel lectures, one in German and the other in the vernacular.

The medical department has numbered in its faculty some of the best men that Germany and Austria have ever produced.

To speak only of the last few years, Klebs, the celebrated pathologist, has but recently left Prag for Zurich; Toldt, the present professor of anatomy, has no superiors, and the present century lost one of its brightest surgical ornaments when the lamented von Heine died, three years ago. He was succeeded by Gussenbauer, of whom I shall have much to say. Ranking with Czerny as one of Billroth's most favorite and brilliant scholars, after being private docent in Vienna for a time, he was called to the chair of surgery in Liège (Belgium); from here he was nominated as Heine's successor. A most industrious student and hard worker; a most fascinating clinical teacher; a fearless operator, I esteem him as already the equal of his renowned preceptor, and I dare say that he will succeed Billroth at Vienna when the time comes.

The hospital here, that is, the main part of it, is about a hundred years old; nevertheless, everything is kept clean and neat. There are also a children's hospital, a foundling asylum, and a military hospital on adjoining lots, and close by are the insane asylum, with sixteen hundred patients, and the new maternity hospital. This latter is the most elegant and best adapted building of its kind I have yet seen on the continent. It is on the pavilion plan, of red brick, thoroughly modern in its external features and internal appointments, and architecturally a thing of beauty. It accommodates nearly three hundred patients. Breisky, who is well known to American obstetricians and gynæcologists, at least, is its shining light. Here the advantages are as good as in Vienna, except that they have perhaps only two-fifths as many births during the year; but they have at least three thousand, an ample number for clinical purposes. Here a student, by payment of five dollars, can have a bed in the students' quarters, and be called to all the labor cases on his side, for six months.

So that, excluding the insane asylum, there are at least a thousand beds to which students have access, and a like number of patients available for clinical purposes. Besides these, there are a large number of out-patients flocking every day to the general hospital.

Gussenbauer has in his service about a hundred and twenty-five in-patients, and an unknown number of out-patients. His

clinic lasts nearly two hours every day, and consists nearly wholly of rare and interesting cases. For instance, the first week I was here there were four exsections of the upper jaw, one or two of the lower, several amputations, and numerous other difficult operations. The number of patients with more or less malignant tumors is astonishing. Every day three or four are presented, and the half are not seen in public; but having "the run" of the wards, I cannot help but notice them.

The other day Gussenbauer attacked what proved to be the most complicated case of ovarian tumor I have yet seen. There were adhesions everywhere and to everything; to the abdominal walls; to the viscera and omentum; to the vena cava; to the ureters; and a smaller cyst dipping down in the pelvis was adherent to bladder, rectum and pelvic fascia. After infinite pains, he removed the whole mass, the operation lasting nearly two hours, and up to date the patient has not had a bad symptom, and bids fair to recover without one.

The previous day he extirpated four inches and a half of cancerous rectum, with the large portion of the prostate. The patient did well for two days, and then rapidly sank. Autopsy showed that he died of fatty heart and thrombosis, but there was not the slightest evidence of peritonitis or sepsis.

And to-day Gussenbauer made the most difficult operation I have yet seen him do; a resection of the pylorus. The patient was a middle-aged woman, who had had symptoms of stomach trouble for three years. A diagnosis of cancer was made three months ago, and last week she was sent in for operation. The tumor being freely movable, it seemed an excellent case for resection.

Bichloride of methylene was used, as it is here in all laparotomies, because it so seldom causes nausea. It is administered with a Clover apparatus. Thymol was used in the spray. The preliminary incision was made in the middle line, both as being more indicated in this case, and as leading to less hæmorrhage. Usually the incision is made obliquely. The diseased part, being brought to light, was carefully deprived of its omentum, on both sides, numerous catgut ligatures being required. The diseased part having been thus excised, the slow and tedious process of

bringing the parts into apposition and properly suturing them was begun.

Either such a long description or one or two diagrams being required to explain this whole process, I must defer a detailed account, perhaps until another occasion. This part of the operation being happily completed, the parts were thoroughly cleansed and returned, and the external wound completely closed. The operation lasted three hours, but such thorough care was taken to prevent hæmorrhage, that I doubt if two ounces of blood were lost. The patient suffered from shock, but was put to bed in as good shape as could be expected. I should have said that two or three suspicious glands in the greater omentum were also removed.

This is Gussenbauer's second case of the kind; his first having been unsuccessful. Although not the first to practice it on the human being, he was among the first to investigate the possibilities of the operation on the dog and other animals.

It may be worth while to state that he uses chloroform invariably in all his operations, with the exception above noted; and I have been both surprised and pleased with the ease with which they anæsthetize patients and keep them under its influ ence; pleased because I am in favor of chloroform, and have always written and talked in favor of it.

Altogether, I think I have said enough to show the vast and varied amount of material in this one clinic, and to render my homage of admiration for its chief. I may add that Prof. Weiss (formerly in Paris) has the other surgical clinic, which is said to be equally rich in material. His lectures are in Bohemian.

Let me devote a little space to Hasuer, the oculist. His name is familiar only to the students of ophthalmological literature, at home, and yet I suppose he is the most expert and rapid operator, perhaps of the present century. The 16th of May is the day allotted in the calendar to St. John Nepomuck, the patron saint of Bohemia. On this day the halt, the maim and the blind come in from all the surrounding country for treatment. Among this motley crowd are a great many cataract cases, and on one of these occasions, having his patients all made ready, Hasuer is known to have operated on *twenty-three eyes in one hour.* I have seen

him several times, and can testify to the wonderful rapidity and certainty of his movements. I saw him one day remove two cataracts from different patients in different rooms, and also operate on both sides for strabismus, *within six minutes*. Of course no anæsthetic was used, and all the dressing was left to the assistants. Hasuer has his own method of extracting cataract. He uses a Beers' knife, makes an incision closely corresponding to the Græfe cut, and then, instead of an *iridectomy*, he performs an *iridotomy*. Most of his results are wonderfully good. Surely the method is deserving a trial on your side of the ocean.

Traufal is not as well known at home as his Vienna colleagues, Politzer and Gruber, but is most favorably known over here. In his clinics are found more than the usual number of cases that repay close study.

I doubt if in any one of the Vienna clinics a larger number of eye or ear cases can be found than in those here; certainly Hasuer's annual showing of nearly two hundred and fifty cataract extractions, will compare very favorably with either Arlt's or Jaeger's.

The skin clinic here is also interesting, though in this respect Prag can hardly compare with Vienna.

If one desires to study either microscopic or gross, normal or pathological anatomy, the opportunities abound and are excellent. The interest in pathological histology which Klebs aroused will not subside under Chiari, who has recently been called here from Vienna. Every morning from five to ten sections are made, and cadavers can be secured for purposes of dissecting or practicing operations for from forty to seventy-five cents.

In every respect, then, Prag deserves the attention of any one going abroad to study. Everything is cheap, even whatever private instruction a man may want. I think no one ought to study in Europe until he has done some work and some practice at home; but to such I can most cordially commend Prag, both as a place where he will be treated much better in every respect than in Vienna, and as a field for study which compares most favorably with Berlin and Vienna, and perhaps ranks next to them.

ROSWELL PARK.

Domestic Correspondence.

ARTICLE XII.

LANSING, MICHIGAN, JULY 12, 1882.

To the Honorable the Senate and House of Representatives, in United States Congress assembled:

Your memorialist, the Michigan State Board of Health, respectfully represents:

That small-pox, diphtheria and scarlet fever have been and are being repeatedly introduced into this State by immigrants newly arrived from foreign infected places, and by travelers who have come in contact with such immigrants; that because of the rapidity of travel, and the vast amount of inter-State travel, it is impossible for State or local boards of health, without extraordinary interference with inter-State commerce, to successfully quarantine against or effectually control these diseases while the United States Government permits one or more of them to be introduced so frequently, as of late, by immigrant vessels which reach this country; that while in ordinary years the introduction of scarlet fever and diphtheria is believed to be of exceeding consequence in causing epidemics, in swelling the death-rates, sickness-rates, pauperism and general suffering, cholera and yellow fever are sometimes thus introduced, and at the present time small-pox is causing especially widespread disaster in this and other Western States; that, by reason of such introduction of disease, the lives, health, and happiness—those dearest and most important interests of our people—are constantly destroyed or placed in imminent danger from those foreign pestilences from which it is entirely possible for the United States Government to afford

protection; that we believe that it is the highest duty of a government to protect the lives of its citizens from dangers which which threaten all, and from which no other than governmental protection is adequate; that it is with deepest apprehension that this State Board of Health learns that by reason of insufficient provisions, in the Sundry Civil Service Appropriation Bill, for the National Board of Health, the important work which that Board has lately commenced and is expected to do is likely to be crippled; that this Board believes that now, more than ever before, is a most inopportune time to lessen in any way the activity and usefulness of the National Board of Health, believing, as this Board does, that there is no other governmental department, bureau, or "service" so closely connected with the highest interests of all citizens and of humanity.

Therefore this State Board of Health earnestly prays Congress to grant sufficient appropriations to the National Board of Health, and to make such other provisions as will enable it to continue the immigrant-inspection service at all important ports of entry, and on important lines of travel, and to provide in every possible way for the protection of the whole country from cholera and yellow fever, and also from those contagious diseases hereinbefore mentioned, which are well-known as causing the most deaths and distress, throughout the greater portion of this country.

By direction and on behalf of the Michigan State Board of Health.

LE ROY PARKER, *President.*
HENRY B. BAKER, *Secretary.*

ARTICLE XIII.

MONTICELLO, FLA., JULY 12, 1882.

PREMATURE LABOR, INDUCED BY QUININE.

EDITORS CHICAGO MEDICAL JOURNAL AND EXAMINER:—The patient, æt. twenty-two, was five months gone in her second pregnancy; was in a debilitated and anæmic condition from repeated attacks of malarial fever.

Quinine had been given by her husband, in small doses, for some days, but failing to check the fever, he increased the dose to grains xiij, which was followed in ten hours by an abortion, with considerable hæmorrhage.

Yours very respectfully,

THEODORE TURNBULL, M.D.

ARTICLE XIV.

CHICAGO, JULY 1, 1882.

MESSRS. EDITORS:—I have received a number of letters from physicians, asking for the strength of the yellow ointment, and I find that by some accident the formula was left out in the copy of the MS. To remedy this oversight, please state in a note in the next number of the JOURNAL AND EXAMINER, that the yellow ointment I use contains thirty grains of yellow oxide to ℥i vaseline.

Yours truly,

F. C. HOTZ.

A CASE OF RARE DYSTOCIA BY TRANSVERSE OCCLUSION OF THE UTERUS.

The woman, thirty-nine years of age, had borne a child eighteen years ago. When pregnant again after this time she had very severe labor pains, but without any effect. The examination showed a membrane separating the cavity of the uterus from the cervix, which latter was voluminous, and as large as a silver dollar. The posterior cul-de-sac of the vagina was pressed downward, which indicated a sac-like dilatation of the posterior segment of the uterus. The membrane was cut with scissors, but the cavity of the uterus could not be entered. The woman died three hours afterward. The autopsy showed a placenta prævia, the child already putrefied. The cavity of the uterus was separated from the cervix by a membrane, in a transverse direction, and three centimeters long.—*Le Praticien.*

Reviews and Book Notices.

ARTICLE XV.—SENSATION AND PAIN. By CHARLES FAYETTE TAYLOR, M.D. A Lecture delivered before the New York Academy of Sciences, March 21, 1881, being one of the Public Course for 1880–81. 12mo, pp. 77, cloth, 75 cents. New York: G. P. Putnam's Sons, 27 and 29 West 23d St. 1881. Chicago: Jansen, McClurg & Co.

This is one of those rare gems of literature, which could not have been written before the latter half of this century. The terminal statement made, that Carpenter, Bain, Spencer, Bastian, Maudsley, Tuke, Huxley, etc., had been consulted before the author prepared his lecture, was not intended for the critics, who could well enough imagine that, yet the subject is treated in an original as well as masterly manner, and illustrated with a variety of charming anecdotes, which render the book just as interesting to a schoolboy as to a metaphysician.

After giving a short description of the function of the nervous system, a condensation, as it were, of the first part of Herbert Spencer's Psychology, Dr. Taylor explains the relation between consciousness, sensation and pain, explains illusions of some sorts, and gives a mode of performing minor operations without pain, which physicians of experience have all practiced more or less. A perusal of this little book will well repay every practitioner, but its reading is fully as interesting to those who have no practical knowledge of medicine. It will be remembered Dr. Taylor is free from all the prejudices of the age, and astonished the medical profession of New York not long ago, by pointing out the ill results of disuse of the sexual organs among the unmarried women of the higher class. In the book under consid-

eration, the same principle of looking after truth, whatever the consequences may be, has been followed throughout.

ARTICLE XVI.—LECTURES ON ELECTRICITY (DYNAMIC AND FRANKLINIC), IN ITS RELATIONS TO MEDICINE AND SURGERY. By A. D. ROCKWELL, A.M., M.D., Electro-Therapeutist to the New York State Woman's Hospital, etc. 8vo, cloth, pp. 122. Profusely Illustrated. New York: William Wood & Co. 1881.

For those who possess the larger work of the author and Dr. Beard, this will serve the purpose of a valuable supplement; yet this little book is complete in itself, and suffices for the ordinary wants of those physicians who have occasion to use electricity once in a while.

The issue of this little book is timely, to say the least, for since Dr. Poole, of Ontario, propounded his theory that electricity was nothing but a paralyzer, and that Dr. S. V. Clevenger said that the medical applications of electricity were few, and gave the name of quacks to some of its most prominent advocates in this country, the sale of batteries must have suffered a reverse. Dr. Rockwell's little book will strengthen the faith of the many, and is surely worth reading by even those who know so little about batteries as to suppose that the results depend on the physician's judgment, instead of on the different currents used.

ARTICLE XVII.—"DOCTOR, WHAT SHALL I EAT?" A Handbook of Diet in Disease, for the Profession and the People. By CH. GATCHELL, M.D., formerly Professor of Theory and Practice, University of Michigan. 12mo, cloth, pp. 147. Published by the Author. Milwaukee: 1880.

The author recommends beef, mutton, chicken, eggs and milk, and discards pork, veal, salt meats, fish and cheese. He recommends to substitute olive for cod-liver oil (?) when the latter disagrees. Wheat flour and rice thoroughly cooked are valuable.

Here is the rule given in regard to fever-patients: Give no solid food to a fever-patient; let the food be simple, but nutritions; give it at frequent intervals, and in small quantities; let

the patient have all the cold water he wants to drink. Follow the recipes of various articles of diet. This is the plan followed throughout, and it is so thorough as to satisfy most readers, patients and cooks.

This work is constructed on the principle of the manuals which have been flooding the market lately; compendia from larger works. That the condensation has been well done, there is no doubt, and the author had the good sense to leave out every patent article of diet or artificial food.

On the whole, Dr. Gatchell has produced a useful little book, which should be found in every household.

ARTICLE XVIII.—A MANUAL OF ORGANIC MATERIA MEDICA, Being a Guide to Materia Medica of the Vegetable and Animal Kingdoms, for the use of Students, Druggists, Pharmacists and Physicians. By JOHN M. MAISCH, PHAR. D., Professor of Materia Medica and Botany in the Philadelphia College of Pharmacy. Philadelphia: Henry C. Lea & Co., 1882.

A book evidently written for a purpose, and not simply for the purpose of writing a book. It is comprehensive, inasmuch as it refers to all, or nearly all, that is of essential value in organic materia medica; clear and simple in its style; concise, since it would be difficult to find in it a superfluous word, and yet sufficiently explicit to satisfy the most critical.

The system of classification of subject matter is natural and obvious, the first step being their separation into animal and vegetable substances. The first of these grand divisions is subdivided into, first, that in which the entire animal is used, e.g., the leech, coccus, cantharis, etc.; next, animal products, e.g., eggs; next, animal tissues, as sponge, gelatin, etc., and, lastly, secretions and excretions, as musk, castor, etc.

A similar method of classification applied to vegetable matters permits their separation into cellular and non-cellular structures, and the subdivision of these classes into roots, rhizomes, tubers, bulbs, twigs, woods, barks, leaves, leaflets, herbs, flowers, petals, fruits, seeds, etc., and next into sugars, extracts, gums, resins, oils, balsams, etc.

The text is freely illustrated with wood-cuts, which cannot fail to be valuable in familiarizing students with the physical, microscopic and macroscopic appearance of drugs.

The work is preceded by a table of contents, and completed with that, without which no book should be considered complete, *i. e.*, an index.

In fact, the little book is just what it pretends to be, and as such is worthy of unqualified commendation. W. H.

ARTICLE XIX.—A MANUAL OF MIDWIFERY. By ALFRED MEADOWS, M.D., London, F.R.C.P., Assisted by ALBERT J. VENN, M.D., M.R.C.P. Fourth Edition, Revised and Enlarged, with 137 Illustrations. 12mo, cloth, pp. 498. G. P. Putnam's Sons. New York: 1882.

This book is in brevier type, a common thing with the text-books and periodicals of Great Britain, which should not, however, be encouraged, for the impairment of sight resulting from the reading of small type more than counterbalances the saving of money. Needless to mention that the largest part of this book is formed of condensations, yet it also contains some statements not to be found in some larger works. The class of people for whom this book will be most useful are the young physicians who need to take an obstetrical book along when called to cases of labor, as this one is not at all bulky. But while we have Ramsbotham, Playfair, Lusk, and so many other valuable text-books, we do not see the advantage of shorter works. However, this manual is not by any means to be classed with the cramming manuals, for it certainly contains more than the essentials of what it treats, and will confer all the necessary knowledge on those who make a careful study of it.

ARTICLE XX.—HOW WE FED THE BABY, TO MAKE HER HEALTHY AND HAPPY, WITH HEALTH HINTS. By C. E. PAGE, M.D. New York: Fowler & Wells, 1881.

The old proverb says, "Out of the fullness of the heart the mouth speaketh."

It is very evident that the author's heart is full of his baby, fuller, perhaps, than his baby would be of food, upon three meals

a day, which seems to be the hobby upon which he would ride into printer's ink and notoriety.

The book is a protest against over-feeding of infants, and while it contains much that is true, contains nothing that is new, or that has not been taught and practiced by intelligent physicians for a generation.

Exception to this criticism should, however, be made in favor of the author's scheme of feeding an infant but three times daily—which would seem to those who, unlike the author, have had more than one baby, a somewhat too vigorous protest against over-feeding.

The author's citations from "Mark Twain" are funny, but can scarcely be regarded as authoritative. In his list of authors for reference let him add to Mark Twain, "Holy Job," and read what that authority says about book-making, and ponder it well before he publishes another book (or baby). W. H.

ARTICLE XXI.—A TEXT-BOOK OF PHYSIOLOGY. By M. FOSTER, M.A., M.D., F.R.S. Second American from the Third and Revised English Edition, with Extensive Notes and Additions, by E. S. REICHERT, M.D. 259 Illustrations. 12mo, leather, tinted edge, pp. 987. Philadelphia: Henry C. Lea's Son & Co., 1881. Chicago: Jansen, McClurg & Co.

A more compact and scientific work on physiology has never been published, and we believe ourselves not to be mistaken in asserting that it has now been introduced into every medical college in which the English language is spoken. This work conforms to the latest researches into zoölogy and comparative anatomy, and takes into consideration the late discoveries in physiological chemistry, and the experiments in localization of Ferrier and others. The arrangement followed is such as to render the whole subject lucid and well connected in its various parts. However, the amount of information contained in these 900 and odd pages is immense, and requires a good deal of pondering before the student's mind can become familiar with it. This is an unavoidable fault of modern text books, because of the wonderful stride just made in the various sciences connected with animal life.

ARTICLE XXII.—MEDICAL HERESIES HISTORICALLY CONSIDERED. A Series of Critical Essays on the Origin and Evolution of Sectarian Medicine, Embracing a Special Sketch and Review of Homœopathy, Past and Present. By GONSALVO C. SMYTHE, A.M. M.D., Professor, etc., etc. Philadelphia: Presley Blakiston, 1880.

The "Series of Critical Essays on the Origin and Evolution of Sectarian Medicine," indicated in the above title, is comprised in ninety-five pages of this little volume, and might with greater propriety be entitled an epitome or abstract of the history of certain medical heresies. Although doubtless interesting to those who have read little of the history of medicine, or to whom a wide range of medical literature is inaccessible, this narrative is inaptly termed a "series of essays," and still more inaptly entitled "critical."

The only heresy which the author has really essayed to criticise being that last and most stupendous of all, homœopathy. The zeal with which he assails this modern delusion impresses the reader that this is really his objective point of attack, the *raison d' etre* of the book, and that the preliminary narrative is merely a sort of skirmish before the battle.

While there can be no question of the justice of the author's criticisms, their wisdom may well be doubted. The time and labor wasted in combating heresies, whether theological, philosophical or medical, would be much more profitably utilized in the observation of facts and phenomena, the deduction of their underlying principles and the laws to which they are subordinated. Science, like philosophy, can afford to let heresies alone and pass them by unnoticed. All heresies must sooner or later perish, since they contain the elements of their own destruction, *i. e.*, the principle of negation. Upon such foundation no permanent superstructure can be reared; any edifice so constructed must depend for its maintenance upon factitious aid, and this is always largely composed of that sort of public sentiment which rallies at the cry of "persecution." "The blood of the martyrs is the seed of the church," and medical, like all other heretics, love to play the role of martyrs, and thrive upon "persecution."

While we deprecate all sectarian polemics in medicine, it must at the same time be said that if anyone is still unsatisfied of the absurdity of homœopathy, and has the time to waste in informing himself thereupon, he will find it sufficiently demonstrated in this little book to satisfy the most incredulous. W. H.

ARTICLE XXIII.—DRUGS THAT ENSLAVE. THE OPIUM, MORPHINE, CHLORAL AND HASCHISCH HABITS. By H. H. KANE. Presley Blakiston, Philadelphia, 1881.

The author's object in the publication of this little book is to direct attention more forcibly to the evil effects of the opium habit, more especially, and also to those resulting from chloral and haschisch. He indicates, also, the danger incurred by medical men of establishing these habits in susceptible patients, by the incautious administration of the drugs under circumstances which seem to demand their use.

He suggests as a very efficient cause of much of the opium eating in the higher classes of society, the pernicious influence exercised by the examples of Coleridge, De Quincey and other opium slaves who have acquired eminence in the domain of belles-lettres, and very justly charges De Quincey with having "left a large debit on the side of truth, and handed down to succeeding generations a mass of ingenious lies * * *;" lies which have fascinated many a weak-minded victim, and lured him to his ruin. Of these the author cites examples, and we could add to the number.

The author regards with especial apprehension the dangers surrounding the hypodermic administration of these drugs, calls attention to the rapid dissemination of this method among the laity, and points out certain accidents likely to accompany subcutaneous medication, even when applied by experts. Among these he cites, from the experience of numerous observers, the occurrence of almost fatal syncope.

In announcing his ideas concerning the treatment of the opium habit, the author especially condemns the sudden withdrawal of the drug, and approves the gradual diminution of the dose as more humane, as well as more efficient. Reason, observation, and personal experience induce us to differ from the

author's views upon this subject. If certain deleterious effects ordinarily follow the use of any drug whatever, and so surely that the drug may reasonably be indicated as their cause, whether the drug be opium, chloral, haschisch, or alcohol, its absolute withdrawal would seem to be the most rational and essential first step toward accomplishing the removal of the effects. Long continued observation will satisfy the majority that the "tapering off" process, will more frequently result in disappointment than in success, and the personal experience of any confirmed morphine eater will enable him to distinguish no difference in the tortures resulting from the withdrawal of the half or of the whole of his accustomed dose.

Moreover, the author announces as barbarous the sudden withdrawal of the drug after the method of Lowenstein (several of whose cases he cites), which appears from the record to have occupied nine and eighteen days respectively, while for the application of the gradual (his own) method he insists upon the preliminary signing of a paper "submitting him (the patient) to the entire control of the physician for ten days," a very wise precaution, but inconsistent with his expressed preference for the gradual (?) method.

A little more attention to grammatical accuracy would have been commendable in a work addressed to professional readers: for example, on page 38 we are told that "alcoholic stimulants are used by some habitués to increase the effect of the morphia, which *it* does to a certain extent. They delude themselves into the belief that they will be enabled to thus reduce the amount of morphia used, but in the majority of cases this is a fallacy." And on page 83: "I think that the doctor is right, with reference to idiosyncrasy, but I think, also, that the method of administering the drug had much to do with it."

The book contains much that is worth knowing to those ignorant of its subject matter, and will serve to direct attention to the unwarranted abuse of a most valuable therapeutic agent.

In conclusion, the author takes occasion, very properly, to censure physicians who encourage these dangerous habits in their patients, druggists who pander to them for the sake of gain,

charlatans who profess to cure them by the substitute of one narcotic for another, and the (so-called) "religious press," which advertises these rascals. W. H.

ARTICLE XXIV.—THE DIET CURE; An Essay on the Relations of Food and Drink to Health. Disease and Cure. By T. L. NICHOLS, M.D., Author of "How to Live on Sixpence a Day," "How to Cook," "Esoteric Anthropology," "Human Physiology, the Basis of Sanitary and Social Science." New York: M. L. Holbrook & Co.

A sort of digest of dietetic philosophy, the whole science of hygiene in a nut-shell. The author is not only an M.D., but a philosopher of the school of the stoics, and an enthusiast, who seems to have accepted the conclusions of the Arab in the story, who, when butter was declared by the merchant to be as sweet as honey, inferred that honey was better than butter, and when honey was declared to be as clear as water, concluded that water was the best of all. So our author appears desirous of excluding everything from his dietary system as impure, except air and water, and these only in exceptional cases, since they, too, are often impure, and "dried apples," "these," he admits, "are delicious"—"when cooked with sugar."

On page 9 he says: "Let us imagine man placed upon this planet, fresh from the hand of the Creator: what would he eat? Precisely that for which *he was adapted*. He would smell, pick, eat the strawberry, the plum, the peach, the apple, the orange, the banana, the fig, the date, the clusters of ripe grapes. To these he would add all kinds of sweet nuts, and for variety, or pressed by hunger, he would eat tender leaves, as of lettuce or cabbage, and roots, as turnips or onions."

The author does not tell us what his man would do during six or eight months, with six feet of frost in the ground. Evidently Col. Sellers' diet of raw turnips and water was not original. "There's millions in it."

One of the author's works was omitted from the title page, to be referred to in the text *i. e.*, "a baking powder," prepared with which even "white bread" may be eaten without danger.

W. H.

ARTICLE XXV.—THE INCIDENTAL EFFECTS OF DRUGS; A Pharmacological and Clinical Hand-book. By Dr. L. LEWIN, Assistant at the Pharmacological Institute of the University of Berlin. Translated by W. T. Alexander, M.D. New York: William Wood & Co., 1882.

In the author's preface occurs the following: "But in the therapeutic employment of certain drugs, deviations sometimes occur from this typical, and, as one may say, normal action, whose recognition and correct interpretation are not always easy."

These deviations from the normal action of drugs, the author has classified etiologically into those dependent on individual peculiarity, those attributable to temporal or local influences, and those resulting from the quality of the drug.

Under the first of these classes, *i. e.*, individual peculiarity, he includes those physiological susceptibilities termed idiosyncracies, both organic and chemical, or chemico-vital. Under organic idiosyncrasies he classifies "variations in the influence of external agencies upon homologous tissues," and also "those manifested by similar and dissimilar organs in the same individual under the influence of external agencies."

Under chemical idiosyncrasies are classed those dependent on "the presence in the body, in excess, of chemical substances which render more soluble than usual the medicinal agents introduced, or which enter into combination with them, thus forming new and directly deleterious agents," and "pre-existing pathological changes in organs, or diseases of the regulatory apparatus."

Under the head of "Temporal and local influences" he indicates more especially what has been aptly termed the "epidemic constitution" and climatic influences.

The deviations dependent on the quality of drugs he attributes to the following causes: *i. e*, to poorness of quality of the crude drug, to deterioration by age, to adulteration, or to variation in quality resulting from different modes of preparation.

In the book before us the author has elaborately discussed the anomalous effects and their various causes, in their relations to more than one hundred of the most valuable articles of the materia medica; he has enriched his treatise with citations from

nearly four hundred authorities, and has accomplished his work in a style and manner which cannot fail to prove attractive to every student and scholar, for the evidences of laborious investigation, judicious classification and careful analysis, as well as for its clearness of expression, elegance of diction and conciseness of style.

This book will richly repay any reader for the time and attention bestowed upon its pages. The expert, if he finds nothing which has not already come within the range of his own observation, will, at least, find verifications of his experiences which will serve to corroborate them, while the tyro will learn the true interpretation of many perplexing problems, whose solution will surely puzzle his brain during the clinical experiences of his future professional life.

This book is a real contribution to medical science, a narrative of work done, for whose introduction to an English reading profession no small measure of commendation is due to the translator. The style of English into which the German has been rendered indicates that it is the work of one familiar not only with the German language, but also with his own, a qualification apparently regarded as superfluous by the majority of translators. The publisher has done his work in a manner befitting the excellence of the subject matter; the paper, type, composition and press-work are alike good, so that the book is not only "good reading," but "easy reading." W. H.

ARTICLE XXVI.—CONSPECTUS OF ORGANIC MATERIA MEDICA AND PHARMACAL BOTANY, Comprising the Vegetable and Animal Drugs; Their Physical Character, Geographical Origin, Classification, Constituents, Doses, Adulterations, Etc.—Table of the Tests and Solubilities of the Alkaloids Appended. By L. E. SAYRE, PH.G. Detroit: George S. Davis, Medical Book Publisher, 1880.

This will prove a valuable text-book for students, for whose use it purports to have been written. It is apparently the work of one practically familiar with his subject and competent to teach. It comprises a chart of botanic materia medica, in which the articles are tabulated under the captions: Natural order,

officinal name, botanical name, common name, habitat, parts used, constituents, medical properties, dose and officinal preparations; chapters devoted to the geographical grouping of materia medica, to structural botany, to the botanical arrangement of plants, to the characteristics, constituents and adulteration of drugs, concluded with a very useful table of vegetable antidotes and incompatibles, and one of solubilities and tests of alkaloids.

Notwithstanding its syntaxical defects, the book is a useful contribution to medical literature, and is deserving of presentation in a better dress than that in which its publishers have invested it. The remarkable disproportion between its price and its mechanical demerits, will probably prevent a circulation to which its intrinsic merits entitle it. W. H.

ARTICLE XXVII.—FOOD FOR THE INVALID, THE CONVALESCENT, THE DYSPEPTIC AND THE GOUTY. By I. MILNER FOTHERGILL, M.D., Edin., Member of the Royal College of Physicians, London; Associate Fellow of the College of Physicians, Philadelphia, Etc., Etc.; and HORATIO C. WOOD, M.D., Professor of Materia Medica and Therapeutics, and Clinical Professor of Diseases of the Nervous System in the University of Pennsylvania; Member of the National Academy of Science. New York: MacMillan & Co., 1880.

The book consists of an introduction, which might be justly termed an essay on the philosophy of food, terse, concise, sententious, epigramatic almost, written by the free hand of a master, reminding one of some of the productions of the impressionist school of artists, by whom a single bold dash of color will give the entire life and character to the painting, and a collection of recipes for facilitating the preparation of wholesome and palatable food for the classes for whom they are intended.

The necessity for regulating the diet in accordance with constitutional requirements is indicated thus, "Taraxacum for the liver, and potash for the kidneys are all very well, but a correct and intelligently designed dietary is the main thing. When of old the doctor sagely shook his head and said: "Liver and kidneys," he was not the fool it has been recently the fashion to regard him. He saw through a glass darkly, but nevertheless

correctly. He was in the dark, true; but daybreak was not far off. And again, "In most persons the system is not easily deranged, and excess is not swiftly followed by punishment, while in others the punishment follows quickly on the heels of the offense. These latter are quickly taught the relations of cause and effect; a rich meal means a bilious attack next day; a good dinner with sub-acid wines, a red hot great toe at no very distant period. But, sad to say, the voice of the avenging fate is only audible to a very fine ear, and is never heard by ordinary persons. They go on eating and drinking, guided, or rather led by their palate, which latter they whet with bitters. But in the far distance there is "gout poison" and "bile poison;" the danger signals are up, but they are not heeded until they have been passed, and then these individuals become wise after the event. It is a pleasant course they follow: why meet trouble half way? Events that are in the distance may not happen. Quite so! The feet of the avenging deities are shod with wool, etc. W. H.

ARTICLE XXVIII—A MEDICAL FORMULARY, Based on the United States and British Pharmacopœas, Together with Numerous French, German and Unofficinal Preparations. By LAWRENCE JOHNSON, A.M., M.D., Lecturer on Medical Botany, Medical Department of the University of the City of New York; Fellow of the New York Academy of Medicine, Etc. New York: William Wood & Co., 1881.

Everything should have what Gallic neighbors are wont to call a "raison d' etre," an excuse for its existence. If this book has such we fail to perceive it. It purports to "present in a manner convenient for ready reference the drugs and preparations in common use, etc.," thereby violating, at the same time, truth and syntax, and, "though based on the United States and British Pharmacopœas," does not include all the drugs and preparations contained in them, a number of the less important having been omitted." A modest confession, surely, concerning a book of less than four hundred pages, which presents very superficially what the works from which it is compiled treat more thoroughly. The metric system, which has been already

so generally adopted, and which must soon be universally applied, is disposed of in a short paragraph in the introduction, and nowhere else in the whole work receives recognition.

It is simply one book more on the subject of pharmacy, which would be valuable if the others did not exist. Moreover, it assumes to be one of a "Library of standard medical authors," being in truth a compilation by a neophyte absolutely unknown in medical literature. W. H.

ARTICLE XXIX.—OPIUM SMOKING IN AMERICA AND CHINA. By H. H. KANE, M.D.

From every possible source Dr. Kane has collected the material for this interesting little volume. As an instance of the thorough investigation he has given the subject, he has hunted up the most incorrigible opium "fiends," giving them treatment and shelter free of charge, for the purpose of studying the habit. He has smoked himself many times, carefully noting the physiological phenomena. Every official likely to possess information he has written to or interviewed on the subject. The English opium trade with China receives pretty thorough ventilation, not to English credit. The amount of the opium trade, and its increase year by year, is tabulated. The growth of the habit in America is illustrated in startling detail. The author has concluded, however, that the habit can be thoroughly cured with ease, compared with the morphia or opium eating habit. New York: G. P. Putnam's Sons. W. L. D.

ARTICLE XXX.—THE PHYSICIAN HIMSELF, and What He Should Add to the Strictly Scientific. By D. W. CATHELL, M.D., late Professor of Pathology in the College of Physicians and Surgeons of Baltimore, etc.

This modest little volume, on a miscellaneous collection of subjects, which rarely find a place in literature, will be found a grateful companion by a large proportion of the medical profession. It consists of an essay on personal questions in medical practice, written in simple, colloquial style, in the form of a reply to a question, that the subjects may appear more direct and personal to the reader. There is not a subject connected with the

personal welfare of the medical man mentally, morally or ethically, left untouched. The author says, in his first lines: "Professional tact and business sagacity are as necessary to the physician as the mariner's compass is to the navigator. There are gentlemen perfectly acquainted with the scientific aspects of medicine, who can tell you what to do for every ailment that afflicts humanity—but who, after earnest trial, have secured neither reputation or practice, because they lack professional tact and business sagacity; and there is nothing more pitiful than to see a worthy physician waiting year after year for practice that never comes." To such the author plainly says: "You will find that intellect, genius, temperance and other excellent qualities will all fail, unless you add ambition, self-reliance and agressiveness to them." To the young doctor he says: "You should, above all else, strive to start promptly on the road to success; for, unless you let the people know you are about, make some mark, and get a reputation in your first six or eight years, the probabilities are that you never will." Our old Mentor thoughtfully remembers the young Galen in his perplexity as to choice of location, and advises him as to many little things, even to the size and inscription on cards and signs, and details of office arrangements. The importance of cultivating methodical business habits is earnestly inculcated. The personal conduct of the physician under all circumstances is thoughtfully and sensibly advised upon. There is a convenient index appended, in which the various exigencies of professional life are alphabetically arranged and paged.

Every physician who has not reached the calm grays of age will find something of profit to himself in this little brochure, which so pleasantly fills a "long felt want." W. L. D.

HERR PROF. C. WEDL, Professor of Microscopical Anatomy in the University of Vienna, was lately for a brief time a visitor in Chicago, where he was entertained by Prof. DeLaskie Miller, and a few other medical gentlemen.

Editorial.

THE NEW YORK CODE OF ETHICS.

We learn that a large proportion of the county medical societies in the State of New York have already refused to sanction the revised code adopted by the State Society last February, thus rendering it quite probable that it will be repealed, or so modified as not to conflict with the national code, at the next annual meeting of the State Society.

It is certainly desirable that such a result should be reached; for one of the great benefits to be derived from a written code of ethics, depends upon its *nationality;* namely, its influence in unifying and harmonizing the profession by furnishing a common rule of action for all parties and sections. But the nationality of a code can neither be acquired nor preserved, unless its framing and revisions are both left in the hands of the American Medical Association, as the only national representative organization, the voting members of which are direct delegates from the State and local medical societies. If each State medical society should follow the example of that of New York, it is plain that all uniformity would be destroyed, and the conflicting ethical regulations would speedily render it impossible to preserve the harmony and representative character of a national organization. Consequently, the only proper course would be for any State society, the majority of whose members desire alterations of the ethical code, to instruct its delegates to the National Association to propose, in that body, such alterations as might be desired. That would give to the delegates from all the societies an opportunity to take part in the consideration and adoption or rejection of the changes proposed.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—During the last few years, the proposition to have the American Medical Association establish a weekly medical journal, somewhat after the form of *The British Medical Journal*, in which the proceedings and papers should be published, instead of publishing them in a single volume, as heretofore, has been urged with much earnestness by some of the most eminent members of the Association. In 1880 the subject was referred for consideration to a special committee selected for that purpose. The committee made its first report at the meeting in 1881, setting forth the probable cost of the publication of the proposed journal, the changes necessary in the by-laws of the Association, and earnestly recommending the change of publication to be made.

The report was favorably received, the committee continued and enlarged, with instructions to report a more full and definite plan of proceeding at the next annual meeting. Accordingly, at the recent meeting in St. Paul, the committee submitted its second report, still further urging the establishment of an Association Journal and the adoption of such measures as will secure its pecuniary support.

The Association adopted resolutions approving the proposed change, and appointed a board of nine trustees, with instructions to agree upon the plan for a journal, and issue a circular setting forth such plan, and address copies of the same to all members of the profession in this country, asking for direct pledges of pecuniary support. The board were also instructed to agree upon the best time and place for issuing the proposed journal, and upon the best editorial talent that could be secured for its direct management, and report definitely on all these topics at the next meeting of the association. The Board of Trustees have already agreed upon the *plan* for the proposed journal, and the circular, or prospectus, will soon be sent to members of the profession throughout the whole country. On the responses to this circular will depend the success or failure of the enterprise. If those who receive it either carelessly throw it aside without attention, or, after reading and perhaps approving it, they postpone making a reply until it is forgotten, and, in consequence, the board receive but few pledges, it cannot make a favorable

action at the next meeting of the association. It is very desirable therefore that all members of the profession who are in favor of the publication as proposed, should make prompt remittance as requested in the circular. That a weekly journal, having a reading constituency in all parts of the country such as would be furnished by the membership of the Association, under wise and judicious editorial management, would be capable of doing very much to advance all the important interests of the profession, is too apparent to need argument.

ONE of the editors of this journal has, during the past month made a change in the location of his office. Communications intended for Dr. James Nevins Hyde should hereafter be addressed to 240 Wabash Avenue.

PROF. J. ADAMS ALLEN is expected to return from Europe in time for the approaching session of Rush Medical College. Prof. H. P. Merriman of the Chicago Medical College is still abroad. Prof. W. H. Byford has returned, and is again engaged in his professional work. Prof. E. C. Dudley, of the Chicago Medical College, was on a recent date married to Miss Anna M. Twomb, of Winnetka, Ill. He has received the warm congratulations of a large circle of friends, including his colleagues among the medical editors of this city.

Original Translations.

A VISIT TO THE LARGE OPHTHALMOLOGICAL CLINICS AT PARIS.

It is interesting for the foreigner, as well as for the country physician, to go through the large clinics at Paris. The ophthalmological clinics at this place offer a wide field for observation and study. The new instruments, and the methods of examination, which have been so progressive in the last two decades, have made ophthalmology an exact mathematical science. The surgical treatment has also made great progress. In cataract operations, V. Graefe's method has been entirely abandoned in France, and that of De Davrel has been substituted for it, but with V. Graefe's knife, which latter has the superiority over all the modifications made by surgeons and manufacturers of instruments. The cut is laid entirely into the cornea, and iridectomy is often practiced beforehand. Preventive iridectomy is practiced in cases of softening of the corpus vitreum. The division is made with laceration of the capsule, and there is a tendency at the present time among Parisian oculists to cut into the lower segment of the capsule, even with the risk of lacerating the posterior part of the iris. But this is a very dangerous proceeding if the eye is not kept perfectly quiet.

The removal of the lens is accomplished either with a spatula or by pressing the globe with the fingers. The removal of small remaining particles is considered of great importance, and the removal of these is executed either with a curette or with a pincette with flat points. The discision is made after the eye is restored to a perfectly quiet state, and the best results have been obtained in strictly maintaining this point. The globe is usually

fixed with a pincette. Mr. Fieuzal has invented a new instrument for the discision, which prevents loss of the corpus vitreum. Panophthalmitis is prevented by antiseptic treatment, which is also largely applied in affections of the lachrymal sac with lachryocystitis after cataract operations. The perfect execution of the operation however, is regarded as important to following inflammations. Phenic acid, salicylic and boracic acids are the remedies employed in antiseptic treatment. Linen or fine sponges, wetted with a solution of the acids, are applied over the eye, or the globe is bathed in a vapor of these solutions. Sclerotomy, in cases of glaucoma, has not had the results hitherto expected. In cases of haemorrhagic glaucoma it is always practiced, iridectomy provoking disastrous results in those cases, and in cases of simple chronic glaucoma it is also employed, if there was not the expected result by iridectomy. There seems to be some doubt in regard to the practicability of sclerotomy by the French oculists. Iridectomy is the general operation in glaucoma, and here Graefe's knife is generally used in its performance again. Optico-ciliary neurotomy is not thought to be of continued success, the ciliary nerves regenerating after the operation. Warlomont has invented a kind of ecraseur for this operation, and he hopes to have better success.

Enucleation of the eyeball is very often performed at Paris. Some surgeons do not operate until the eye is in a purulent state, but others enucleate on the first symptoms of panophthalmitis. There have been mostly good results after the operation.

Galvano-puncture is largely practiced in the clinics. It is employed in the following affections: ulcerations of the cornea; small hernia of the iris; ablation of the retina; in inveterate pannus it is employed instead of abrasion of the cornea; in cysts of the eyelids; in entropion; also in apposition of the lachrymal sac and nasal canal it is very often used. It is further proposed to apply it to the anterior chamber of the eye for formation of a large artificial pupil and for removing the exudations after cataract operations. Excision of the conjunctival cul-de sac has been performed in cases of granular ophthalmitis with the best results. Extirpation of both lachrymal glands has also been performed in cases of narrowed nasal canals, accompanied by severe blepharo-

conjunctivitis. Anterior staphylotomy (resection of the upper part of the cornea) has given good results in regard to movement of the eye and of the external appearance. — *Recueil d'Ophthalmologie.*

ALL the French medical journals are discussing, in a more or less excited manner, the question of divorce in mental alienation. Can a person get a divorce from the affiliated in case the latter is insane? Hitherto the law has been the same in France as in our country, but at present the legislature will make some amendments on this matter. The Académie de Médecine at Paris is discussing the question, and the legislature will do what the Académie, as supreme judge in all medico-legal questions, will decide. In Germany divorce is permitted in cases of insanity, and it now seems that France will follow the same rule.

O. S.

HOW CAN THE ACTION OF ARSENIC BE EXPLAINED IN DISEASES OF THE SKIN.

In the treatment of certain diseases of the skin, arsenic is employed very often externally, as well as internally, and especially in malignant diseases of the skin, arsenic is applied externally with good success. The action of arsenic applied externally in lichen, psoriasis, lupus and carcinomatous degeneration has been generally considered to be of a caustic character, which seemed to be proved by the change of tissue and the complete destruction of malignant structures. But every other caustic substance destroys the malignant tissue as well as the healthy structure, which arsenic does not. Others have thought that arsenic forms a composition with the albuminous substances of the diseased structure, but this is not the case. Nitrate of silver and other caustics combine with the albuminous substances of the healthy as well as of diseased structures, destroying both equally. The only way to explain the destructive action of arsenic on these tissues lies in its chemical properties. If we expose a Fowler's solution to the air, thus allowing contact of air and organic substances with the fluid, we will find the arsenic acid changed to arsenious acid. There has been produced an

oxidation, one atom oxygen being added: K_3 to $O_3+O=K_3$ to O_4. The atomic form O is not represented in the air, but the molecule O+O. We must therefore conclude that arsenic acid will be changed to arsenious acid if there is a factor which changes the molecular form into the atomic, and this is the organic substance. It is a well-known fact that arsenious acid gives off its oxygen to reducing substances. If there is a third (organic) substance, giving off oxygen, the arsenic acid will take it up and form arsenious acid. Thus, but a small quantity of arsenious acid will oxydize a considerable quantity of organic substance, by giving off the oxygen to these substances and taking it from another substance, which gives off oxygen. The two facts, that arsenic acid will be easily oxydized to arsenious acid, and that arsenious acid will be easily reduced to arsenic acid, will show the action of arsenic on malignant tumors.

Binz showed first that the active protoplasma in tissues has the capacity in a high degree to thus change the arsenic and arsenious acids. The action of the arsenic is understood to be that arsenic acid seizes upon the oxygen of the cell, forming arsenious acid giving off the oxygen to the same cell, and being reduced to arsenic acid.

Through the blood the arsenic acid is brought in contact with the tissues, and it causes by its oxidation and reduction a degeneration of these tissues, like that of fatty degeneration of the liver in arsenic poisoning. That part of protoplasma which plays a *rôle* in excessive physiological processes, and especially that in the glands, is mostly exposed to the action of arsenic. It is a conceded point that wherever the vitality in organs is at the highest point, there arsenic will act most powerfully, and by that the therapeutical action of arsenic is established. Arsenic acid, in form of a paste, brought in contact with tissues affected with lupus, etc., will be oxydized and reduced alternately, destroying the tissue which is excessive in its vitality. Therefore the nodules of lupus, etc., will undergo necrosis, and the skin will appear, as Kaposi says, as if chopped with a puncheon.—*Monatsehr f. Pract. Dermat.*

THE congress of German surgeons was held at Berlin, President Dr. V. Langenbeck in the chair. Prof. Dr. V. Bergmann spoke on the blood-changes in acute infectious diseases. He does not think all the symptoms of these diseases fully explained by the germ theory (parasitic infection). There are some chemical poisons which reproduce the same symptoms as bacilli. The white blood corpuscles are dissolved not only by the bacilli, but also by certain ferments (pepsine and trypsine).

Prof. Dr. V. Braun thinks extirpation of large malignant strumata not expedient, on account of their rapid growth around the trachea and œsophagus. These tumors grow very often into the veins of the throat, and render an extirpation very dangerous or impossible. Langenbeck and Gussenbauer say that they agree with the author's opinions. Braun says that ligation of the femoral vein near Poupart's ligament is not so dangerous as ligation of the vein and artery. In rare cases, however, it will happen that circulation is impeded after ligation of the vein alone, through tight closure of the venous valves.

Dr. Schwalbe reports his method of radical cure of hernia. He makes injections of alcohol around the hernia. Ranke and Gussenbauer state the safety of this procedure, it being not dangerous, and effecting a shrivelling of the sac. Dr. Michael reports his results with the modified canula of Frenselenburg. In a case of communication between the trachea and œsophagus, he was able to tamponate the trachea with the modified canula permanently. Sonnenberg speaks of the application of permanent baths in the treatment of surgical cases. These baths have been of perfect success in cases where Listerism could not be applied, as in operations of the vagina, rectum, and the bladder.

O. S.

CONTUSION OF THE POPLITEAL ARTERY WITHOUT DAMAGE OF THE EXTERNAL PARTS, FOLLOWED BY THROMBOSIS AND DEATH.

A man, thirty-two years of age, was run over by an omnibus and brought to the Hospital Necker. The wheels of the omnibus ran over the lower limbs just below the knee joints. The right limb was seriously damaged, and there was a good deal of

bleeding, which was stopped by a tampon. On the left limb there was a large ecchymosis, without any damage of the external parts. Both knee joints were infiltrated and immovable. On the following night there was noticed considerable friction sound under the knee joint. Both limbs were treated antiseptically. The pulse was 100; temperature 86, and the patient vomited. The next day all the symptoms were aggravated; temperature 80. The left limb was cold, insensible, and no arterial pulsations. The patient vomited severely. The next day gangrene of the left limb set in. Antiseptic treatment was abandoned on account of the dark-colored urine. An operation was not determined upon, on account of the severe general symptoms (sic!). The patient died after being five days in the hospital. The autopsy showed a bi-malleolar fracture of the right limb and bloody infiltration. On the left limb the lesions were highly interesting. The articulation of the knee joint was filled with blood. The subcutaneous tissue was largely infiltrated with blood, and the infiltration was dispersed through the muscular interstices down to the foot. The soleus muscle was partly ruptured, and torn from its superior insertion. The popliteal artery was not ruptured. On the posterior aspect of the tibia the popliteal artery appeared to be blackened, and cylindrical in form. The external wall of the artery was infiltrated with blood, and there was a complete occlusion, the artery forming a flat cylinder. This was caused by a contusion of the artery, which had been pressed between the tibia and the wheels of the omnibus. On opening the artery there was a dark clot three cm. long, adhering to the anterior walls of the vessel. The inner coats were ruptured, and the adventitia infiltrated with blood. The aorta, the femoral artery and the sigmoid did not show any signs of atheroma.—*France Médicale.*

"I don't, myself, like living in a world with such a multitude of murdered men in the ground of it—though we *are* making heliotropes of them, and scientific flowers that study the sun. I wish the scientific men would let me and other people study it with our own eyes, and neither through telescopes nor heliotropes." (Ruskin.)

Selections.

A STUDY OF THE PERIODS OF INCUBATION OF THE COMMUNICABLE DISEASES. BY BENJAMIN WARD RICHARDSON, M.D., F.R.C.P., F.R.S. (Continued from page 107, July number.)

The diseases of the first group are fairly steady in respect to incubation, but it may by some be raised as a question whether catarrh, either superficial or cellular, should be classed amongst the communicable diseases at all. On this point I am very interested to hear the opinion of this Society. That catarrh may be excited without communication I know, and it may be that it is always due to a general influence.

Of the diseases of the second or third group, exceptions may be adduced in which the disease may have a shorter incubation, in particular cases, than is assigned in the classification. Such exceptions must be admitted, and my own case of scarlet fever, quoted by Murchison, shows for this disease, occasionally a very brief incubation,—six hours at longest.

Others may question whether rosalia idiopathica has a period of incubation at all, and whether it is not more closely allied to those affections attended with rash, which, like urticaria, are induced by improper food, than to scarlet fever. I attended once, with Murchison, a case that terminated fatally from occurence of bullæ in the glottis,—coming on during convalesence,—in which we never determined whether the affection, which commenced like an attack of acute urticaria, was roseolous or not. The eruption became like that of scarlet fever, with large white blotches over the surface, and in all respects yielded the form of disease which Mason Good designated rosalia parithmitica.

I would prefer, for my part, to classify these as doubtful cases, and at the same time leave them open for further study.

The diseases of the third and fourth groups will be accepted as fairly steady. Relapsing fever, as I knew it in 1847, had a longer period than five days of incubation, but by inoculation it is said to have five days.

In the last group syphilis will be accepted as having the long incubation of forty days. But hydrophobia is the most difficult disease to define. It may have a few days of incubation only. It may have months or even years.

These considerations lead up to the third question with which I opened this paper in respect to differences of opinion on periods of incubation. Do these differences depend on fault of observation, or on the circumstance that there are, in the same diseases, varying periods of incubation, the variations being under no defined rule?

My answer to this question is, that the differences of opinion so often professionally expressed, and which strike the general public with such wonder, are due rather to want of uniformity of observation than to variation of natural phenomena.

This I trace to four sets of causes—

1. That we have never yet agreed altogether as to the first sign that indicates the close of incubation.

2. That until lately we have not ventured to classify, so that there has been no clear grouping of diseases by the test of incubation.

3. That we have been accustomed to consider exceptional phenomena of incubation as more common and important than they really are.

4. That we have been too much accustomed to connect diseases which are most disimilar in actual fact too closely because of certain similarities which do not really affect the question when all the facts are known.

Now that we are coming nearer to the truth we may hope to classify the exceptions, the nature of which is included under the next heading of my paper. Upon what circumstances do the exceptional periods of incubation of the communicable diseases occur, and why do they occur?

We may assume that a difference in physical property is the reason of the difference of action of the distinct poison of the defined communicable diseases. But when we are dealing with a single poison,—with the poison of scarlet fever, for instance,—the difficulty commences. We can scarcely conceive that the poison changes in character and operation; and we are, therefore, obliged to trace out its effects through the means by which it comes into operation.

In studying this difficulty we light at once upon one useful fact. We know, of a certainty, that a poison which will affect, both by inoculation and by absorption through the lungs or alimentary surface, acts according to the circumstance of introduction in distinctly different periods. In the case of small pox, it acts one-fifth more quickly when it is inoculated than when it is absorbed through membrane. There would, therefore, probably in every case of absorption, be a difference in favor of rapidity of action, if the poison should be distributed over an injured or abraded surface, so as to inoculate such a surface in transit.

It is fair again to assume that the poison may be inhaled in a form of diffusion more ready for absorption in some cases than in others. But the great cause of difference is, I suspect, in individual susceptibility to the action of the poison, and it may be to the different influence of the same poison under different times and conditions of life. With this part of our study we have to unravel all the questions connected with the course of the communicable diseases in relation to seasons. That we should be more susceptible to the action of the poisons of the spreading diseases at those seasons of the year when there is excessive waste of bodily structure, and that we should be less susceptible to them in genial seasons when there is a balance in favor of nutrition is not a strange physiological pathological phenomenon. That we are more susceptible at the one period and less so at the other is, I suspect, more than a mere coincidence.

Here, however, I come to a point in theory which must be reserved for experimental development and exposition.

I turn now lastly, and briefly, to the practical sides of the subject in hand, and these are many. I will allude to three.

If we could arrive at definite evidence on which we could all rest, that the incubation of a disease is produced by the occurence of a certain indication, we could account for much that seems now to be mysterious. For example, in vaccinia can it be that, trusting entirely to the local phenomena, we sometimes have an apparently good vaccination in which the disease never has incubated at all? If that be so, there is a reason why the person who seems to have been thoroughly vaccinated, should still remain susceptible to small-pox. The suggestion, though it stands alone, is all-sufficient to indicate the practical importance of delivering incubation before pronouncing as to the protection afforded by some, but not all, the symptoms of a communicable affection.

The division of diseases of the communicable type into different classes or groups, according to the stage of incubation presented is, I think, a practical acquirement of the most important every-day value, both in curative and preventive science. Dr. Squire has not in the least degree over estimated this part of modern knowledge. It is quite true, as he shows, that to know when to retain at home a sick person laboring under communicable disease, when to send him from home, and when to separate him from the actual or presumably unaffected, is a direction of practical skill as eminently creditable to the profession of medicine as it is useful to the public. To remove the healthy from the affected is good practice in the case of all the diseases of the first and second of the groups I have given, *i.e.*, of the quick and short incubation series. To remove in the third series may be sound practice. To remove in the fourth, or long incubation class, is less important, and may be a practice that is quite at fault and prejudicial.

Lastly, from the study of the incubation period we learn how to assign the best means of disposing of the affected during convalescence. It seems to be a true reading of natural phenomena that the diseases of short incubation have a prolonged convalescence, and remain long as sources of communication; while the diseases which show a long incubation give a quicker convalescence, and a more rapid freedom from danger as sources of communication. Here, then, is a practical lesson that cannot well

be over-estimated. Keep your cases of short incubation at home: they will infect others and be themselves injured by removal.—*Medical Press and Circular.*

THE PRESENCE OF THE MICROCOCCUS IN THE BLOOD OF MALIGNANT MEASLES; ITS IMPORTANCE IN TREATMENT. By JOHN M. KEATING, M.D., Lecturer on Diseases of Children in the University of Pennsylvania, Visiting Obstetrician to the Philadelphia Hospital. Read June 7, 1882.

I propose to present for your consideration this evening the report of a recent epidemic in the Children's Asylum of the Philadelphia Hospital. The ward in which the disease first showed itself contained children between the ages of two and three years; some of them had been deserted by their mothers, and others had been placed there temporarily while the mothers were employed in duties about the establishment. For the most part, these children presented a fair appearance of health; they were seemingly well nourished, of good development, though probably they would have been classed as "strumous," if their large features and tendency to glandular enlargements and eczematous eruptions had received careful attention. Together with all children of this class living in asylums, they certainly presented an open field for the production of those complications that are usually such fatal attendants upon measles.

In order to save time, I shall in this paper simply narrate the history of the cases. The little patients were zealously cared for by Dr. H. E. Campbell, resident physician, to whom I am indebted for the record of the notes taken at each of my visits.

I shall also embody in this report the investigation undertaken by Dr. Henry F. Formad, now well-known as the patient and thorough investigator of the microscopic appearance of the blood in diphtheria, associated with Dr. H. C. Wood, under the auspices of the National Board of Health. Dr. Formad examined almost daily the blood of each little patient, and together we noted the presence of micrococci in the malignant cases, and

their absence in those of mild type; a record of these examinations was kept by Dr. W. A. Edwards, assistant pathologist, as also the records of the post-mortem examinations, and to him I am indebted for them. We entered this study with no pre-conceived views, the rapidity with which this exceedingly fatal epidemic came upon us, necessitated careful study in order to attempt, if possible, to discover its cause. I present also some photographs which show well the appearance of the field in these cases.

Case I.—J. F., aged two years and three months, was taken sick April 12, 1882. There had been no cases of well-defined measles in the house at that time, although it was epidemic in the city. The child had a sore throat, some cough, with fever. The throat eruption was punctated and well marked. The child died in convulsions April 15, 1882.

Autopsy.—An ante-mortem (chicken fat) clot was found in the right heart, extending into the pulmonary artery. There was great systemic venous engorgement. A decided staining was noticed upon the cadaver, especially about the temple, which caused the remark that the disease was probably one of the exanthemata. This child had been placed upon carbonate of ammonia, quinia, and digitalis; had had bromide of potassium, hot baths, and stimulants in small quantities.

Case II.—M. J., aged three years and five months, was taken sick April 9, 1882. A slight eruption on the face was noted April 11, 1882; the next day the eruption was complete over the entire body. In this case the eruption was irregular, was decidedly that of measles, but of malignant type. Still she did well until April 17, 1882, when suddenly the breathing became harsh, and pulse was rapid. At 4.30 P.M., had an attack of suffocation, with rapid feeble pulse. There was general venous engorgement, the face and lips were purple; pulse growing more rapid. Hot baths, with mustard and frictions, were used, and carbonate of ammonia and digitalis given. It was suggested to bleed in this case, but the evidences of heart clot were so marked, and the child had exhibited so many evidences of malignancy at the onset, that baths were used instead. April 11, 1882, at 3

A.M. she was still growing worse despite treatment, and shortly after had a violent convulsion and died.

There was no autopsy permitted.

Case III.—A. G., æt. 16 months. Took sick April 15, 1882.

April 16th had prodromes of measles. The temperature and pulse ran as follows:

16th.— P. M., 102°.
17th.—A. M., 101°; P. M., 103°; pulse, 180.
18th.—A. M., 102°; P. M., 103°; pulse, 180.
19th.—A. M., 101°; P. M., 102°; pulse, 160.
20th.—A. M., 101°; P. M., 102°; pulse, 148.
21st.—A. M., 100°; P. M., 100°; pulse, 180.

In this case no defined eruption appeared on the body, although there was a decided papular eruption on the uvula and anterior half arches of the throat. Whilst showing this case to the class we noted streaks of grayish membrane in the fauces. The child had decided bronchitis, and the voice showed that the laryngeal mucous membrane was also affected. This child was not at that time very ill. There was no question in our minds at the time that it was affected severely by the measles poison, that it was, in fact, another malignant case. It was carefully watched, the nourishment regularly given with quinia and iron daily, as was customary in all the cases.

On the 21st the breathing was noted as peculiar (I shall describe it hereafter). An emetic was ordered of ipecac, fearing an accumulation of mucus from the bronchitis present, and also carbonate of ammonia and digitalis and hot foot baths were given. The child's intelligence seemed good, and it will be noted that the temperature was but 100°, while the pulse was 180.

At 8 P. M. a second attack of suffocation occurred, and the child died in violent convulsions. The venous engorgement was very marked.

Autopsy.—A. G., baby, æt. one year. Post-mortem examination held ten hours after death.

Heart. Left side and valves all normal.

Right side. A large ante-mortem clot filling the cavity of the

right ventricle, and extending into the auricle; a clot was also seen in the pulmonary artery.

Lungs. Left, normal.

Right lung. At the base of this lung the lesions of pulmonary congestion were seen, especially where the lung approximates the diaphragm.

Intestines. Slightly congested and hyperæmic.

Mesenteric glands. Enlarged and infiltrated by simple congestion.

Kidneys. Normal.

Blood. Taken from the heart cavity as soon as it was opened, and examined, showed micrococci in the liquor sanguinis and in the white blood corpuscles.

CASE IV.—J. F. McH., æt. 23 months. This child had a typical attack of measles. The case was shown to my ward class several times throughout its course, the eruption was studied carefully in all of its details, and my friend, Dr. John M. Taylor, obtained for me an excellent representation of the measles eruption in water-colors from this case. I refer especially to these points as evidence that the case was one of measles; the cases heretofore were so irregular as to leave room for doubt to those hearing the recital of their histories. The eruption was rapidly disappearing, and desquamation had set in. April 21, the bronchitis seemed to be aggravated, the respirations were 36, and expirations seemed unusually prolonged. The breathing was noisy; the heart's action was rapid; pulse 148. Suddenly, in the evening, an attack of suffocation came on, which was relieved by an inhalation of nitrite of amyl. On the morning of April 22 the heart was beating 168; the venous engorgement was very marked, the jugular veins standing out like whip cords; the respirations were from 36 to 40, but the temperature was 99°. I saw the child at this time, and noted the gasping breathing, the feeble pulse, and the tumultuous action of the heart. There seemed to be capillary spasm, judging from the gasping breath, the imploring look which the child gave to all its attendants, and we at once gave an inhalation of nitrite of amyl. In a few moments it seemed relieved. The administration of carbonate of ammonia, digitalis, hot baths, etc., was rigidly adhered to.

The child seemed comfortable until 4:30 P. M., when it had another attack of milder character, though longer duration, and in it, finally died of convulsions. It was observed, says Dr. Campbell in his notes, that the convulsion was not as severe as in the previous cases.

Autopsy.—J. F. McH., post-mortem made twenty hours after death.

Eruption not well-marked.

Heart. Right ventricle contained a small ante-mortem clot. This clot was in the cavity of the ventricle, and did not involve the valves, either tricuspid or pulmonary. The left side of the heart was normal in every respect; contained no clot.

Lungs. Normal, with the exception of hypostatic congestion at both bases. The pulmonary and costal pleura of the left side were inflamed, and adherent in some places.

Trachea. Inflamed, and containing a tenacious mucous secretion.

Larynx. Inflamed and hyperæmic.

Liver. Normal.

Intestines. Peyer's patches and the solitary and agminated glands infiltrated and hyphræmic.

Mesenteric glands. Enlarged and infiltrated; they were about the size of a grain of corn.

Kidneys. Normal.

Spleen. Amyloid bodies enlarged until they presented almost the appearance seen in a tubercular spleen.

Blood. Taken from heart as soon as punctured. Micrococci were found in the liquor sanguinis and in the white blood corpuscles, and they were mobile. In the corpuscles they were seen in great numbers in active movement, of a vibratory or whirling character, and they appeared to have devoured the white cells. No bacilli were seen.

CASE V.—J. McG., æt. 26 months. Ordinary case of measles. The eruption had disappeared on or before April 15.

April 22. Child restless; marked bronchitis; cough paroxysmal upon waking, especially after excitement; mucous râles coarse, and fine throughout lungs posteriorly; throat congested, and saliva at times tinged with blood. At this date the breathing

was noted as noisy. Pulse 144; respirations 32; temperature 100°.

April 23. Mucous râles becoming general, and not limited to areas as heretofore; pulse 152; respirations 34; temperature 101. In addition to the tonic and stimulating treatment, mustard poultices were applied to thorax, and hot baths frequently given. Carbonate of ammonia was given now, gr. ij, every hour, and bisulphate of quinia by suppository, gr. ij, every three hours. In addition to this, the child was given, as were all the others, milk and lime-water, beef-tea, etc., at frequent intervals. We also used in this case the frequent administration of small doses of syr. ipecac, to relieve the secretion, which was abundant and tenacious.

April 23. Evening. Pulse was rapid; 160 to 170; temperature 102½°; breathing becoming labored and gasping (fish-like); venous stasis was becoming more marked. Increased the whisky to about one ounce a day. The attacks of suffocation continued paroxysmally; the jugular veins stood out like cords at times. Nitrite of amyl gave immediate relief, but relapse soon followed; it was always followed by free emesis, which seemed to be in itself beneficial. About midnight a severe paroxysm came on, and with it a convulsion in which the child died. After death the venous engorgement was more marked, and heart clot had been suspected for some time before. This little patient was the first case whose blood Dr. Formad examined during life; the view of the fluid was photographed; micrococci were found in great abundance, acting especially on the white corpuscles. The blood was examined very shortly before the child's death, when the symptoms of heart clot had been fairly established, and the case declared hopeless.

Unfortunately, no autopsy was permitted in this case.

CASE VI.—F. M., æt. 2½ years. This case ran a course as did the others, and I will only occupy time with a description of the post-mortem appearances.

Autopsy.—F. M., æt. 2½ years. Eruption well-marked on mucous membrane of buccal cavity; not so on cutaneous surface.

Upon laying thorax open, lungs found to be anæmic, as far as

arterial circulation was concerned, but dammed up with venous blood.

Heart. Normal in size and weight.

Right side contained a clot extending along the pulmonary artery for some distance; it was chicken fat in consistence.

Left Side. Normal.

Spleen. Congested: weight four ounces.

Intestines. Along the small intestines could be seen a few Peyer's patches inflamed, and well outlined against the comparatively normal gut. The mesenteric glands presented a very good example of enlargement and infiltration; they looked like so many peas scattered throughout the mesentery.

Liver. Normal.

Kidneys. Normal.

Brain. Not examined.

Blood. Taken from heart cavity as soon as it was open showed micrococci in the liquor sanguinis and in the white blood corpuscles, in abundance; they were not mobile. A number of zoöglæa masses were seen.

Case VII.—C. M., aged two and a half years. The eruption in the throat of this child was very well marked. A few crescentic points appeared in the temples, and the case rapidly developed malignant symptoms.

April 21. Slight grayish suspicious patches of membrane are seated in the throat. The child is hoarse, and there is much bronchitis.

April 22. Pulse rapid; respiration, 28; breathing irregular. There is great general venous stasis, the skin dark and mottled.

Dr. Formad examined the blood microscopically and found it full of micrococci. He took a specimen sample for photography. Prognosis very unfavorable, as the child has fluttering heart and gasping breathing. Hot baths had been used freely with no success, so also salicylic acid, which had been suggested early in the disease.

After consultation with Dr. Formad, the account of which I incorporate in the summary, it was concluded to give at once ℥ij of whisky, and repeat it every hour; milk was continued as the only other food.

April 24. Pulse, 144; temperature, 101°; respiration, 48. Circulation much improved. Venous engorgement relieved; breathing greatly improved. The child continued to improve during the day. At the end of the twenty-four hours it had taken six ounces of whisky, and yet it showed no effects of alcoholism. At noon the pulse was 140, respiration, 36; 6 P. M. pulse 132, respiration, 32; 11 P. M., pulse 132, respiration, 26, and regular, breathing easy, though somewhat noisy, but not harsh.

April 25, A. M., temperature 98°, pulse 128, respiration 26; P. M., temperature 98°, pulse 108, respiration, 24.

April 26, A. M., temperature 98°, pulse 96, respiration 22; P. M., temperature 98°, pulse 104, respiration, 24.

The respirations remained regular, and the child continued to improve.

After the examination of the blood on April 30, owing to the relative increase of the blood corpuscles, it was decided to give Fowler's solution of arsenic gtt. ij, three times daily. The large doses of whisky were kept up for three or four days, and gradually diminished.

I give Dr. Formad's reports, which he kindly wrote out for me:

Microscopic examination of the blood in the above case (examination made with a one-sixteenth immersion lens).

Examination April 22, 1882.—Blood full of micrococci (sphero-bacteria), affecting many of the white blood corpuscles; also a large quantity of these fungi free and in various forms of grouping, mostly in zoöglæa masses. White blood corpuscles are in increased quantity; precipitation of fibrine excessively marked under the glass.

April 24. (Same case.) Micrococci present, but in diminished quantity; white blood corpuscles less affected; precipitation of fibrine less marked.

April 26. (Same case.) Micrococci very marked, yet principally in zoöglæa masses and free in serum, but not affecting the white corpuscles, although the latter are in increased quantity; fibrine not noticeable.

April 30. (Same case.) Micrococci present; white blood

corpuscles still in excess, but not affected by micrococci. Red blood corpuscles not readily forming rouleaux, having lost partly their bi-concavity.

May 3. (Same case.) Micrococci present in diminished quantity. White blood corpuscles diminishing in quantity.

May 7. (Same case.) Same as last.

May 18. (Same case.) Still some few micrococci present; blood otherwise appears normal.

CASE VIII.—J. W., æt. 6 months. May 13, P. M. Eruption appeared on fifth day. The temperature ran as follows:

May 13.—A. M., P. M. 100 3-5°.
May 14.—A. M., 101 2-5°; P. M. 102 3-5.
May 15.—A. M., 101; P. M., 103 2-5.
May 16.—A. M., 101 2-5; P. M. 104.
May 17.——A. M., 101; P. M. 102 3-5.
May 18.—A. M., 102; P. M. 103 2-5.
May 19.—A. M., 100; P. M. 103.
May 20.—A. M., 103 2-5; P. M. 102.
May 21.—A. M., 105; death.

May 13. A fever mixture was given during the day. Quinia et ferri citratis, gr. ij, every three hours.

May 18. The eruption fading, but leaving a purple stain and mottled appearance of skin. Catarrhal pneumonia or collapse probably exists, as the bronchitis is very extensive, the râles numerous, and subcrepitant. The blood examined under the microscope shows micrococci in the blood corpuscles, but none free in the field. They are seen in great numbers.

May 19, P. M. For the past two hours the child has been very restless; the breathing rapid and labored, and also spasmodic. No membrane on tonsils or fauces. Heart's action very rapid; venous stasis marked especially in the jugular veins. Gave hot baths (says Dr. Campbell's notes), and covered him with blankets, with some relief. Increased the whisky to ℥ij every hour.

In the evening gave an emetic. The child at night was breathing easier; friction sounds heard.

May 20. At times the strangulation would seem imminent.

The venous engorgement increased, and the child died in convulsions on the morning of the 21st.

The post-mortem examination showed pneumo niaand pleurisy, with effusion.

The following eight cases were all taken sick at once, and I shall simply give a general statement of them for the purpose of especially calling attention to the case of W. L.

J. J., æt. four years; W. L.. æt. five years; E. C., æt. three years, catarrhal bronchitis; W. W., æt. three years; C. B., æt. two years, catarrhal bronchitis; J. W., æt. five years; J. D., æt. five years; L. K., æt. five years

Of these eight, seven presented severe, but nevertheless typical examples of measles, and their blood was carefully examined by Dr. Formad, and found normal. The case of W. L., who was taken ill at the same time as the others, showed from the onset a malignant tendency, giving a record such as I have already described. Dr. Formad gave me the following as the result of the examination of the blood in this case, and I had frequent occasion of examining it with him myself. Let me say, that as soon as the presence of micrococci was established, the child was placed upon ℥ij doses of whisky every hour. Quiniæ et ferri citras in citric acid, gr. ij, every three hours, friction to the extremities, and warm baths, with milk and beef tea.

April 22. A few micrococci seen in the field.

April 26. Again noted.

April 30. Micrococci still present, white corpuscles increased, and marked precipitation of fibrine. None were noted as having penetrated the corpuscles; those that were found were simply in the serum. This child recovered, though every indication gave a very unfavorable prognosis.

In presenting this detailed report, I desire to call especial attention to the following points, viz.: the microscopic examination of the blood and the constant association of micrococci with the general manifestations of malignancy (a condition already well known), and the gradual but positive amelioration of all bad symptoms by treatment, which was directed to the micrococci as the *fons et origo* of trouble (this, I believe, for the first time exhibited).

It will be noted that the post-mortem examination of these cases showed more or less simple pulmonary congestion, and at times simple enlargement of the glands, but usually so circumscribed as to preclude the possibility of its being the immediate, or even remote cause of death. Again, the mode of death was peculiar: the fatal signs came on suddenly and with frightful intensity; the gasping breathing; the frantic efforts to obtain air (or really to aerate the blood); the imploring look, with consciousness not impaired, seemingly unduly acute, until the final convulsion or gradual cyanosis brought the end. The turgid veins, the occasional venous engorgement, the feeble pulse, and the fluttering heart, pointed unmistakably to but one cause; the gradually forming right-sided heart-clot; and the post-mortem appearance, as these notes show, gave us a large, tough, chicken-fat clot, obstructing the venous circulation, firmly planted in the right heart and its tributaries, which was too often exhibited to raise a question. One of the earliest symptoms of this impending danger was undue rapidity of respiration. The child seemed to be doing well; its eruption irregular, probably incomplete, or dark and mottled, and in blotches, when attention would be called to the great rapidity of respiration, with a peculiar gasping inspiration, fish-like in character. The other fatal symptoms would follow rapidly, and within twelve hours the child, despite carbonate of ammonia, warm baths, digitalis, etc., would die of heart-clot. What caused this?

In a short paper which appeared in the *American Journal of Medical Sciences* for January, 1882, I gave the experience of a number of cases of diphtheria, scarlet fever and measles, and then attributed the condition to an increase of fibrine due to the rapid tissue changes and the malignancy of the type of disease, and urged the importance of pushing an alkaline treatment from the start.

The microscope has shown here that something more is associated with this condition.

The moment that symptoms of malignancy, viz dark eruptions, ill-defined crescents, delayed and imperfect appearance of the eruption, with feeble circulation, high temperature, and pharyngeal false membrane appear, the examination of the blood showed

micrococci in abundance in the field. They do not simply lie as impediments to the free passage of blood, though they most undoubtedly do this, and obstruct its passage in capillaries, but they surround the corpuscles, they enter the white corpuscles, and there develop with surprising rapidity, and finally cause some of them to rupture, and their contents will cover the field. Still, if they alone clogged the circulation in the capillaries, caused stasis in the lung, and thereby provoked an accumulation in the already enfeebled right heart, with blood having a tendency to coagulate, the cause of heart-clot alone would seem explained.

We find that they develop with activity, when the blood current is retarded, hence we find them spread throughout the heart-clot itself, possibly at times having been here arrested by the obstruction to the flow caused by the lung congestion, known as a frequent complication of these cases, and finally aiding, by a mechanical cause alone, the deposition of fibrine that forms the clot. They do more. They act upon the white blood corpuscle, destroy it in all probability, or, at least, as one of the cases proves conclusively, prevent its change to red corpuscles, and thus the oxygen carriers being either destroyed or reduced in numbers with none to replace them, the tissues retain their detritus for want of carriers to relieve them, and another factor is added to increase mortality.

Granted, then, that the appearance of micrococci is coincident with symptoms of malignancy, we must assert that, whether their association be *post hoc* or *propter hoc*, they must have common cause; our treatment receives an impetus in a new direction.

I asked Dr. Formad what, in his experience, most readily checked the developement of micrococci in his culture solutions obtained from erysipelas, diphtheria, etc., he answered, alcohol. Dr. Campbell at once withdrew carbonate of ammonia and digitalis from the treatment for the future, and gave whisky. Five children had already died with the symptoms I have just described, and the sixth was exhibiting all the malignant symptoms, together with those which experience had taught us came from commencing heart-clot. The child had rapid gasping breathing, was becoming cyanosed, its heart was tumultuous, and the rapid pulse was growing weaker. The instructions were to give three

ounces of whisky within the next twelve hours, in frequent and small doses. The treatment was carefully carried out, and the child was saved. In this child micrococci were found in abundance in the blood, but none had penetrated the corpuscles, and for a long time the preponderance of white blood corpuscles was noted, which continued until gradually the blood became normal under the use of arsenic.

Again, let me illustrate another point. In one ward there were six cases at the height of eruption. I carefully examined, with Drs. Campbell and Markoe, each case. One case was found to be of a malignant type. The child's right cheek was hardened and inflamed, and the mucous membrane showed that glistening surface so manifest in cancrum oris. The breath was fetid, there were cerebral symptoms, and a grayish exudation lined the fauces. We wished to test with the microscope, so without reference to any particular case, we requested Dr. Formad to examine the blood of all. In five the blood showed no micrococci, in one a large mass appeared in the field upon the first examination, and this one was the malignant case. This child was placed at once upon large doses of whisky, and it was also given, in tonic doses, quiniæ et ferri citras and citric acid.

The vegetable acids have also this remarkable effect of checking the devolopment of micrococci in culture solutions, especially acetic acid, but the mineral acids, also carbolic acid, it is said, have no such action.

The bichloride of mercury also possesses this quality to a very marked degree.

Now let me, for a moment, review this supject in the light of treatment, which to us is certainly of greatest importance. We may look at present upon the micrococcus as associated with the malignant symptoms of all complications known as "blood-poisoning." It is found in erysipelas, in puerperal septicæmia, in diphtheria, and in malignant measles. Experience has already taught us that alcohol, the vegetable acids, calomel or corrosive sublimate, are the drugs *per se* in septicæmia.

The action of alcohol and calomel is too well authenticated in puerperal septicæmia to doubt their efficacy.

We know of late how surprising a result will often attend the

use of alcohol and corrosive sublimate in malignant diphtheria, and also the value of vegetable acids, especially lemon-juice and claret, in this dreaded disease.

My cases simply illustrate one part of the subject. In this recital I do not allude to the other death-producing complications which are so universal. Children with measles will die of cerebral complications of pneumonia, of enteritis, and entero colitis—with these we have nothing to do at present. Their treatment will, of course, depend upon lesions—quinine, opium, hot baths, poultices will all take part.

I have simply brought forward the subject of "blood-poisoning for your consideration, and as these remarks are based upon the careful study of but one epidemic, they cannot be submitted as conclusive, but simply as illustrative of what may, at some future time, be accomplished by studying, not merely the bacteria anatomically and physiologically, but by experimentation with bactericides as antidotal in their action, in diseases, they may cause or complicate.

The conclusions which seem warranted by the statements of this paper, and by observations made in other cases in the Hospital, are as follows :—

The micrococcus is found in the contents of pustules and vesicles, and also in the blood taken from measles-papules in ordinarily mild cases, without its being present in the blood taken from the punctured finger. In severe cases, called malignant in this paper, owing to the rapid appearance of morbid symptoms, the blood shows early in the attack numerous patches of micrococcus in the field.

In cases of rapid sthenic disease with high temperature and great tissue change, the evidences of large quantities of fibrine with a tendency to coagulation are manifest. The rapid production of micrococci soon gives the mechanical impediment, and if stasis takes place from any other obstruction to the circulation, clots rapidly form.

The non-appearance of clots in malignant fevers attended with fluid blood, such as low forms of typhus, diphtheria, etc, is simply due to the fact that rapid tissue changes have resulted in decomposition, instead of into fibrine-forming substances—no fibrine is

formed, hence no clots—but the micrococci are present all the same. These cases are held by some to be the malignant ones, think the *foudroyante* character of the others, just mentioned, entitle them to be placed in the same category.

But the micrococcus, if left unheeded, may attack the white corpuscle, as distinctly seen under the microscope, and destroy its contents. The red cells also change in appearance, and finally probably become, to all intents and purposes, useless in the economy. When such a condition is seen by the microscope and found extensive, a fatal prognosis can be given, despite the most active treatment.

In cases where the white blood cells are as yet unaffected, treatment, when active, will be followed by good results, provided the other complications, as visceral inflammation, etc, are not in themselves excessive.

Alcohol (whisky in our cases) seems in some way, when given in large amounts, to check the progress of the marauders, to arrest the process of destruction, and, if needful, can be associated with quinine and iron in small repeated doses, digitalis perhaps, and frictions, baths and poultices, etc. As we have seen, the symptoms presented are contemporary with the changes going on within the blood; they may, in lieu of a careful microscopic examination of the blood, be taken as a gauge for treatment; knowing what can and will take place, early active treatment will give the patient some chance for the future.

WE have to express our indebtedness to the author of the preceding article, Dr. J. M. Keating, of Philadelphia, for sending us advance sheets of his exceedingly interesting paper. The author neglected to inform us of the name of the journal if any, in which his paper is to appear, and it is for that reason only here omitted. Should we be in position to credit it to the proper source in another issue, we shall be glad to perform this proper duty.

CLINICS.

MONDAY.

Eye and Ear Infirmary—1.15 p. m., Otological, by Prof. Jones; 2.15 p. m., Ophthalmological, by Prof. Hotz.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical, by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes; 3:30 to 4:30 p. m., Diseases of the Chest, by Dr. E. Fletcher Ingals.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m., Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p.m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics, by Profs. J. H. Hollister and R. N. Isham.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, and at the South Side Dispensary.

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Original Lectures.

ARTICLE I.

CHRONIC GENERAL DISEASES, OR CONSTITUTIONAL AFFECTIONS: THEIR CAUSES, PATHOLOGY, AND THE PRINCIPLES THAT SHOULD GUIDE THEIR TREATMENT. A Lecture in the Regular Course on Practical Medicine in the Chicago Medical College. By N. S. DAVIS, M. D., Chicago, Ill.

Gentlemen: Having completed the consideration of the acute general diseases, I now invite your attention to the second division of general diseases called chronic or constitutional affections. Under this head belong scrofula, tuberculosis, leucocythæmia, pernicious anæmia, Addison's disease, carcinoma, constitutional syphilis, rheumatism and gout.

Diverse from each other as some of these diseases may appear to be, they nevertheless have a sufficient number of circumstances in common to justify their being grouped together.

First. They are all characterized by a very persistent, if not permanent, alteration of the natural properties of the tissues,

giving rise to certain morbid tendencies or predispositions to the development of special local affections both of a functional and structural character.

Second. They are all capable of being transmitted from parent to child—in other words, of being perpetuated by hereditary influence.

Third. So far as relates to the general or constitutional morbid condition, there is no tendency to a self-limited duration.

Fourth. They all arise from causes acting with feeble intensity, but persistently, through long periods of time, and of such a nature as to modify one or both of the elementary properties of living, organized matter.

In all these particulars, this group of constitutional diseases stands in direct contrast with the class of acute general diseases which we have already passed in review. You have observed that, in all the latter, the morbid manifestations are of an active character, leading rapidly to functional and structural changes of limited duration, are incapable of hereditary transmission, and arise from causes acting with more intensity, but of limited duration, one full impression of which often destroys the susceptibility to any further action of the same cause. On the contrary, the diseases I am about to discuss are based on such changes in the properties of the primary organic molecules entering into the various structures of the body, as give such molecules certain tendencies to deviate from the natural standard or type of development, leading, if not counteracted by adverse influences, sooner or later, to such alterations in the molecular movements constituting nutrition and disintegration as to develop structural changes, consisting of local hypertrophies, atrophies, tissue degenerations, or morbid growths, according to the degree and direction of the primary deviations.

So slight and occult are the original changes in the properties of the organic atoms or cells that the constitutional vice or defect may exist for years without any appreciable structural changes, as we see in those hereditarily predisposed to pulmonary tuberculosis, carcinoma, etc., and yet if at any time during the life of such individuals, ordinary exciting causes chance to induce local irritation or inflammation, the presence of the latent or constitu-

tional condition is made manifest by the unusual persistence of the local morbid action and the special tendency to degenerative changes in the exudations or other products resulting therefrom. For instance, a child possessing the scrofulous diathesis or constitutional condition, if exposed to a current of cold air upon the neck, may have inflammation, exudation, and tumefaction of the lymphatic glands, ending either in permanent hypertrophy, caseous degeneration, or destructive suppuration; when the same cause provoking a similar degree of inflammation in a strictly healthy child, would have caused but a temporary exudation and swelling, to be followed in a few days by resolution and a return to the natural condition. So an adult with the tuberculous diathesis or constitutional condition, attacked with pneumonia followed by the usual exudation, will be likely to have such exudative material undergo either purulent degeneration, constituting diffuse suppuration, or caseous degeneration and early phthisis, instead of resolution and re-absorption, as usual in subjects previously healthy.

That the primary and essential pathological condition constituting a chronic general disease, constitutional vice, cachexia, or diathesis, as it is variously called by different authors, consists in a morbid condition of one or both of the inherent properties of organized living matter, is proved both by its liability to hereditary transmission, and its persistence indefinitely with a well-known tendency to develop, sooner or later, specific nutritive changes in some of the structures of the body. As the germinal cell or aggregation of bioplasm furnished by the female, and the spermatozoa furnished by the male, are both living organized materials, it is reasonable to suppose that they will partake of the same properties, whether perfect or imperfect, that belong to all the other organized atoms of the bodies in which they were developed; and consequently, in their independent subsequent growth, they will generally develop the same morbid tendencies as were possessed by the parent. The modifications of the properties of the germ may be so strong as to lead to manifest errors of nutrition during the development of the fœtus in utero, or at any time during the period of subsequent growth, or so feeble as not to cause their appearance until after the climax of adult life

in the early stage of physical decline. While the essential pathology of all this class of diseases consists in some modification of the elementary properties that govern the molecular changes constituting nutrition and growth, these modifications not only differ in degree in different cases in the same constitutional affection, but they also differ in kind or direction in each affection from all the others; so that the local manifestations of disease developed from time to time during the progress of any given case, are peculiar to the special constitutional affection to which the case belongs.

For instance, the general morbid condition constituting scrofula, never gives rise to the local, functional or structural changes characteristic of syphilis, carcinoma, or leucocythæmia, and *vice versa*. Neither do you find the rheumatic constitution giving rise to the local inflammations of gout, or the reverse. This affords further proof that the primary or fundamental pathological condition consists in some deviation from the natural condition of the properties inhering in the organized tissue elements, inasmuch as it shows obedience to the universal law of living matter, namely, that like begets like. It is true, that constitutional syphilis may be established in a subject already scrofulous, or by a sufficient exposure to the proper causes and modes of living, gouty affections may be engrafted upon a previously rheumatic diathesis; but this in no proper sense invalidates the law just stated in regard to the fixed tendencies of each constitutional disease. Another fact of much pathological importance is, that the local affections which are liable to appear during the unrestrained progress of any one of the general diseases included in the class under consideration, are not accidental complications, but natural or necessary outgrowths resulting from the progress of the constitutional vice. They may be hastened in their appearance, or rendered more severe by the intervention of special exciting causes, or the influence of bad sanitary conditions. And, on the other hand, their development may be retarded or entirely prevented by the combined influence of good climatic, hygienic, and sanitary regulations.

And yet, in a large majority of cases, it is the local morbid developments that chiefly occupy the attention of the patient,

and on account of which he seeks the aid of his physician. The local developments resulting from the progress of the scrofulous diathesis, appear most frequently in some part of the adenoid or lymphatic glandular system, and next in the cutaneous surface. Those of the tuberculous, which is closely allied to, if not a mere modification of the scrofulous, may be met with in any of the more vascular structures of the body, but are most frequent in the lungs, and next in the mucous membranes and lymphatic glands. In leucocythæmia and pseudo-leucocythæmia, the almost uniform tendency is to develop hypertrophy or increased growth of the lymphatic glands and spleen.

Etiology.—There is no doubt that a large proportion of the cases of the several diseases included in this group have their origin primarily in hereditary influence. This I have endeavored to explain already; but cases are also met with in relation to which no hereditary influence can be traced. These appear to have had their origin from certain causes which had been permitted to act steadily through long periods of time, and yet with so moderate a degree of intensity as to avoid exciting acute general disturbances. One class of these causes produce their deleterious effects by acting primarily on the processes of digestion, assimilation and nutrition; another class exert their influence on the processes of disintegration and elimination of waste material. To the first, belong insufficient or unwholesome food; inadequate supply of light, heat, and pure air, and want of proper exercise. To the latter, belong all those agents and influences that slowly but persistently retard retrograde metamorphosis in the tissues, or interfere with the elimination of the products of such metamorphosis through the proper excretory organs, such as continued exposure to cold and damp air; deficient physical exercise; depressing mental emotions; the habitual use of alcoholic drinks; and the occupation of rooms overcrowded, or inadequately supplied with air and sunlight. Food may be insufficient in quantity, or in the variety of its nutritive constituents, or of such quality as to render it indigestible, and, in either case, the blood will become more and more defective in the proportion of its nutritive elements, and some of the tissues will be correspondingly impoverished.

There are but few persons in this country who suffer from inability to procure a sufficient amount of food. In the feeding and rearing of children, however, errors of much importance are frequent among all classes. Among the poor we often find large families living on the coarser and cheaper articles of food, with but little variety from week to week, and at the same time occupying damp, unclean, and ill-ventilated apartments; and glandular swellings, chronic ophthalmias, caries of the bones, and other local evidences of scrofulous and tubercular tendencies are common among them. Quite as often among the rich and fashionable we find the infants and young children committed to the care of nurses, kept much within the limits of the nursery, and indulged so freely in the use of saccharine matter, consisting of sugar, candies, sweet-meats, and sweet-cakes, at any and all times of the day, that they lose all relish for plain bread, milk, meat, and other nitrogenous food. The result is that they grow delicate, slender, thin in muscles, with narrow chests, unusual mental vivacity, and extreme susceptibility to all kinds of impressions. The anxious mothers always assert that they are so delicate they will take cold every time they are allowed to go out. It is among the children so trained that we find many of the best samples of the scrofulous constitutional condition, accompanied by frequent temporary, and sometimes permanent, enlargement of the lymphatic glands of the neck. And of those belonging to the same class who live beyond childhood and youth, there are many who become tuberculous between the ages of eighteen and thirty years.

Nothing is more certainly proved by abundant observation, than the fact that long continued living on food deficient in some of the elements needed for healthy growth and repair of living structure, is capable of modifying the assimilative processes in such a way as to develop imperfect cells and other tissue elements. And if to the use of food thus deficient, there be added living and sleeping in inadequately ventilated apartments, too little habitual exercise of the muscles of the chest and upper extremities, and clothing either inadequate for protection against sudden and extreme atmospheric changes or so adjusted as to impede the free expansion of the chest, you have a combination of

influences, which, if long continued, are certain to so modify the properties of the blood and organized tissues of the body, as to establish some one of the special diatheses or morbid constitutional conditions, whether it be scrofulous, tuberculous, leucocythæmic, or rheumatic. It is also true, that a morbid constitutional condition thus acquired, if well established, is capable of being transmitted from parent to child, and thus start a new line of hereditary influence.

A somewhat careful study of the etiology of constitutional diseases, has led me to the conclusion that the habits of a people in regard to diet, drinks, dress, occupations, and the construction and cleanliness of houses, have far more to do with the production and propagation of the scrofulous, tuberculous, leucocythæmic, cancerous and gouty diatheses, than the elements and influences included under the head of climate; while the latter exert a controlling influence in the formation of the rheumatic predisposition. While the protracted influence of low temperature and dampness, combined with either impure air or insufficient food, tends strongly to produce the scrofulous and tuberculous affections; a climate characterized by low temperature with a high degree of moisture, and accompanied by frequent thermometric changes, without other bad influences, equally tends to create the rheumatic affections, by habitual interference with the natural exhalations from the cutaneous surface, and the consequent retention of certain acid constituents in excess in the blood. The excretory material thus retained evidently acts as an irritant, increasing the susceptibility of the fibrous tissues, and the plasticity of the blood, and thus placing the individual in the most favorable condition for the development of active rheumatic inflammation, with general fever from the temporary action of any exciting cause; or without any such intervention, by long continuance, inducing those slow hypertrophies and indurations of the fibrous and connective tissues, in different parts of the body, that constitute the purely chronic rheumatic affections so frequently met with in all cold, damp, and variable climates.

The most prominent characteristics of the climate in the whole Northern belt of our own country, from the eastern foot of the

Rocky mountains to the Atlantic coast, are long and very variable transition seasons (spring and autumn), with a predominance of cold and dampness. And it is exactly over this same belt of country that the population furnishes the highest ratio of the prevalence of rheumatic and catarrhal diseases, as shown many years since in the admirable work on the climate and diseases of the United States, by Dr. Samuel Forrey, formerly of the medical staff of the United States Army, and confirmed by the statistics of Dr. Daniel Drake, in the first volume of his work on the topography and diseases of the great interior valley of this continent. While it is true that the rheumatic diathesis is generally the result of habitual retention of excretory products capable of increasing the excitability of the organized tissues and plasticity of the blood, such retention is not always the result of unfavorable atmospheric or external impressions. On the contrary, I have seen numerous instances in which the same pathological conditio were reached, in some cases by protracted muscular exercise by which the products of tissue metamorphosis were developed faster than they could be eliminated through the natural channels; and in others, by such changes in habits or occupation that a previous habit of active out-door physical exercises sufficient to excite daily increased cutaneous exhalation, was exchanged for one of confinement or purely passive exercise, and consequently less activity in the cutaneous surface.

The gouty constitution or diathesis like the rheumatic, involves an increase of susceptibility in the fibrous or connective tissues, but with less plasticity of the blood, and more tendency to deficiency of the red corpuscles; and the causes most efficient in producing it, are such as directly lessen the action of oxygen in the natural processes of tissue metamorphosis, and the evolvement of those products that are eliminated by the kidneys, instead of the cutaneous structure. The presence of alcohol in the blood lessens the interchange of oxygen and carbonic acid gas through the lungs, and retards the molecular changes in the tissues; consequently its moderate daily use in the form of wine and other fermented drinks, keeps the blood in a state of imperfect decarbonization, diminishing the action of oxygen on the carbonaceous elements of the tissues, and

favoring, first, fatty accumulations and subsequently, fatty degenerations. If the individual thus habitually using, moderately, alcoholic drinks, at the same time indulges the appetite for animal food, and takes very little muscular exercise, he will fail to eliminate the elements of urea, uric acid and the salts of sodium through the kidneys sufficiently fast to prevent the blood and tissues from retaining them in excess. It is the habitual presence of this excess of elements naturally excreted by the kidneys, in connection with the imperfect oxygenation and decarbonization of the blood, that induces those changes in the properties of the tissues which constitute the special gouty diathesis; and that every now and then cause the accumulation of such an amount of uric acid and urate of sodium as to excite the characteristic local nflammations of acute and chronic gout. In some instances the pathological conditions just mentioned as constituting the gouty diathesis, have been produced by habitual indulgence in the use of rich food, and the avoidance of all active physical exercise, without the use of either fermented or distilled liquors. But such cases are very rare, and so far as they have come under my observation there has been reason to suspect some degree of hereditary predisposition derived from the more remote ancestry.

Pathological Inferences—Fro .i what I have now said in regard to causes capable of favoring the formation of constitutional diseases and their mode of action, you may deduce the following pathological conclusions:

First. That all the affections of this class involve, as a primary pathological condition, such a modification of the properties of the organized structures of the body as to render them morbidly susceptible to impressions, and to alter the molecular movements concerned in the processes of assimilation, nutrition and metamorphosis of tissues.

Second. The modification of properties just mentioned may result from hereditary transmission, or from the moderate but long continued action of such causes as are capable of either impairing the processes of assimilation and nutrition; or those of tissue metamorphosis and the excretion of waste products.

Third. In scrofula, tuberculosis, Addison's disease, and pernicious anæmia, the special modification of tissue properties is

such as to increase the susceptibility by which the patients become morbidly sensitive or unduly influenced by almost every kind of external impression, and such an impairment of vital affinity that the formative processes by which the elements of tissues are evolved in the blood and attracted to their proper places in tissue growth and repair, are rendered imperfect and result in the formation of aplastic or cacoplastic material, as found in the caseous and tuberculous deposits and degenerations; or so greatly impaired as to arrest the formative processes altogether, as in the pernicious anæmia.

Fourth. In leucocythæmia and carcinoma there is less alteration of the susceptibility or excitability, but such an alteration of the vital affinity or force, controlling the formative processes as to result in an increase of the leucocytes and lymphoid cells, leading in the one disease to their marked excess in the blood, with hypertrophy of the adenoid glandular structures in different parts of the body, and in the other to a more specific and localized cell and fibrous development, constituting the varieties of cancerous tumors capable of development chiefly in the dermoid and glandular structures containing epithelium.

Fifth. In rheumatism or gout, the general diathesis or modification of tissue properties is such as to increase in a marked degree the susceptibility or general irritability of the organized structures, and to so modify the molecular movements in the metamorphic and excretory processes as to cause the retention and consequent accumulation in the blood, of an excess of certain excretory products, which, by their action on the already morbidly susceptible tissues, are capable of exciting the specific local inflammations of rheumatism and gout. In the present status of pathological investigations, I may state it as probable that the retained excretory products in rheumatism are chiefly lactic acid, and the lactic acid salts; and in gout, the uric acid and urates.

Principles of Treatment.—From the statements I have made concerning the causes and general pathology of the whole class of constitutional diseases, you will readily perceive that their practical management involves two distinct objects, namely: the removal of the general constitutional vice or predisposition, and

the treatment of the various local affections that may appear from time to time during the progress of each individual case. The accomplishment of the first object will depend, mainly, on our ability to remove the patient from the further action of those causes and influences that favor the development of the particu-diathesis in question, and to substitute in their place such hygenic and sanitary measures as will bring a strong influence in the opposite direction. As all these diatheses, when not hereditary, are the result of influences acting moderately through long periods of time, so they can be removed only by influences acting with equal persistence in such direction as to induce an opposite effect. In all these affections, so far as the constitutional condition is concerned, a resort to active temporary medication of any kind, is both unphilosophical and useless. And yet, there are some medicines capable of affording material aid to the patient, if properly selected, given in moderate doses and continued for a long time. One of the chief difficulties in treating successfully all constitutional diseases and defects, is the inability of the patient and his friends to appreciate the necessity for persistence in the use of whatever remedial agents or influences are deemed necessary. It seems difficult for them, and sometimes even for the physician, to realize the fact that morbid conditions and processes which have been years in developing, or may have been inherited, cannot be removed or permanently corrected by the use of this or that remedy for a few days, or by a vacation from school or business, and a change of air, exercise, or climate, for a few weeks, or at most, a few months.

Consequently we see but few well devised and persistently executed plans of treatment adopted for either preventing or curing the constitutional conditions now under consideration. As a general rule you see the children of scrofulous, tuberculous, cancerous, syphilitic, and gouty parents, receiving no more attention in regard to their physical training than those of healthy parents. Yet it is during the period of childhood and youth, while the structures of the body are undergoing active development, that we have the best, if not the only, opportunity to correct such morbid tendencies as result from hereditary influence. And every physician should regard it as one of his most important

professional duties to note the special morbid tendencies of all the families who rely upon him for medical services, and be as careful to point out the means for correcting them, as he is to prescribe medicines when they are actively sick. The family physician should realize that he is the guardian of the health of the families by whom he is employed, and he should so far interest himself in the welfare of the children especialy, that in his professional intercourse he should make such suggestions from time to time regarding the physical exercise, diet, dress, and education of the children as may be necessary to correct hereditary defects or acquired morbid tendencies during the years when such corrections are possible. I cannot too strongly impress upon each one of you the importance of this subject.

As the leading pathological, or morbid elements of the scrofulous and tuberculous diatheses are undue excitability, coincident with impairment of vital affinity or formative force, and possibly deficiency of the phosphatic and calcium compounds in the blood, so the remedial measures adopted should be such as are most efficient in lessening the former and in increasing the two latter. Among the most important of these measures is a plentiful supply of dry pure air, at a genial temperature for outdoor exercise or exposure; a sufficient quantity and variety of nutritious and easily digestible food; clothing of such quality and so adjusted as will best protect the cutaneous surface from sudden and severe atmospheric changes, and leave all the important movements and functions of the body free from mechanical interference; and such habitual daily muscular or physical exercises as tend to increase the development and strength of the muscular structures generally, and especialy those of the chest and upper extremities.

The heads of all families should be fully advised by their physician of the necessity of free ventilation in every part of their dwellings, and especially in their sleeping-rooms. Neither children nor adults should be allowed to sleep in cellar or basement rooms, or rooms anywhere that do not admit of free ventilation and sunlight, and afford, when closed, at least 800 cubic feet of space for each person occupying them. The physiological law, that regular habitual exercise, within certain limits, increases the

amount and improves the quality of nutrition, is one of primary importance, as affording a means for correcting the defects and inequalities of development, whether hereditary or acquired, which exist in a large proportion of all the varieties of constitutional disease. By good air, a fair variety of good food, and regular daily exercise, weak and slender muscles can be made compact and strong; narrow chests with deficient air space can be made broader and more capacious; and with a more complete oxygenation and decarbonization of the blood will come healthier secretory actions and more perfect digestion, assimilation and nutrition. Thus, a bad constitution, or decided predisposition to disease, can be changed into one healthy, and even strong. But it requires much time, judicious direction, and undeviating steadiness of purpose in the daily execution of the work or play directed. And when the morbid conditions or defects have become well developed, and the period of growth nearly or quite completed, before the systematic work of correction has been commenced, it may become necessary to add to the hygienic and sanitary measures already alluded to, a change of climate either temporary or permanent. As a general rule, you will find it most beneficial to send those who have been habitually living in interior valleys, of moist and alluvial formation, either to dry, mild, and elevated mountain ranges, or to the sea shore or on on sea voyages.

Those whose chief defects consist in slender muscles, narrow chests, and undue sensitivenesss of the respiratory organs, will do best in the mild, dry and pure air of the mountains; while those whose defects are chiefly in the digestive and assimilative organs will do best in the more stimulating and alterant atmosphere of the ocean. And yet those who have either inherited or acquired defects while permanently residing near the sea, will often be equally benefited by a change, either to the interior valleys or mountains.

If, in the management of the scrofulous, tuberculous, and kindred diatheses, medicinal agents are resorted to, they should be of such a nature as to be capable of diminishing the general excitability and of promoting the efficiency of the assimilative processes. In other words they should be soothing, tonic, and cor-

rective, or mildly alterant. In former times small doses of the aqueous solution of iodine, given in some mildly sedative vegetable infusion soon after each meal-time, were much used and with good effect. The vegetable infusions most used were those of the sarsaparilla, prunus virginiana, cimicifuga racemosa, and pipsissewa. During the last fifteen or twenty years I have had frequent occasion to recommend for the same purposes a combination of two parts of the syrup of iodide of calcium with one part of the fluid extract of humulus lupulus, or hop. To patients over fifteen years of age, four cubic centimeters (fl. ʒi) of this mixture may be given just after each regular meal-time. To younger children the dose should be less. If the patient becomes weary of taking this, I substitute the syrup of lacto-phosphate of calcium for two or three weeks, after which the other can be resumed.

But in counteracting the constitutional predispositions now under consideration, no medicines, however long their use may be continued, can be relied upon to the exclusion or neglect of the hygienic and climatic influences to which I have referred.

The diathesis or constitutional condition favoring the development of the various forms of cancerous or malignant growths is one of the most obscure in the list of chronic general diseases. I am aware that many of the pathologists and practical surgeons of the present day regard all this class of morbid structural developments as primarily local, and claim that the general cachexia or diathesis is secondary, and the result of the diffusion of the cancer cells, or germs, originating in the local affection. But the fact that the predisposition to the disease is capable of hereditary transmission, while the local development of cancerous structure is often postponed until after the middle period of life, shows that there must be some deviation from the strictly healthy condition of the properties that govern the combinations of organic matter in the development of tissue elements, prior to the first germ of local morbid structure. Again, the fact that in a very large majority of cases cancerous growths re-appear after the earliest and most complete removal of the first unhealthy structure, points to the same conclusion. I have assumed, therefore, that there is a cancerous diathesis, or constitutional predisposition, which, if not

removed, will, in due time, lead to the development of some variety of cancerous structure. In a large proportion of cases this diathesis is the result of hereditary influence; but that it may be acquired without such influence is also proved by the history of many cases in which no prior existence of this form of disease can be traced in either line of ancestry.

By what circumstances connected with diet, drinks, modes of living, or climate, the formation of such a diathesis is favored or counteracted, very little is known. In 1866 my colleague in the department of surgery, Dr. E. Andrews, by a careful and accurate examination of the mortality statistics of this country, as returned by the United States census for 1860, found a much higher ratio of deaths from cancerous diseases in the six New England States, and next in New York, Pennsylvania, New Jersey, and Delaware, the ratio steadily diminishing as he progressed south through the Atlantic States to the peninsula of Florida. The ratio was higher in the States occupying the northern part of the interior valley of the continent than in those farther south, the lowest ratio of all being in the extreme southwest, embracing the States of Texas, Missouri, Louisiana, Arkansas, and New Mexico. The last named State returned only one death from cancer, to two hundred and seventy from all diseases, while Vermont returned one from cancer to forty from all diseases. These figures would appear to show that the prevalence of cancerous affections was favored by a cold, variable, and damp climate, such as that which characterizes the northeastern and northern belt of the United States, and to be opposed by one that is mild and dry.

A more thorough examination of this part of the subject will probably demonstrate the proposition that cancerous affections prevail most wherever a cold and variable climate coexists with density of population, thereby following very nearly the same law of prevalence as scrofula and tuberculosis.* Many facts have come under my own observation favoring the idea that a liberal use of meat, coupled with in-door occupations, or sedentary habits, had a tendency to increase the cancerous predisposition, as it certainly does the local cancerous growths after they have com-

*See Relations of Cancer and Consumption to Climate in the United States. By E. Andrews, M. D. Chicago Medical Examiner, Vol. VII., p. 737. 1866.

menced. In the present state of medical knowledge, perhaps the best advice you can give to parties who, from known hereditary predisposition or otherwise, are desirous of counteracting the development of cancerous diseases in any of the structures of the body, is that they shall live in a mild, dry climate, remote from and elevated above the sea; to take free exercise in the open air; to use meat only sparingly; and wholly avoid all use of alcoholic drinks and tobacco. The principles that should govern us in the management of the rheumatic and gouty diatheses are plainly inferable from what I have already said regarding their mode of development; and the details of their application will be further explained when I come to speak of the active local developments of these affections. Having completed what I deem important to say regarding the general management of constitutional diseases, I shall reserve the consideration of the treatment necessary after local affections have become apparent, until I call your attention to each of the several diseases included in this group separately.

THE AGE OF GERMAN MEDICAL COLLEGES.—The university of Prague was founded anno Dei 1348; Vienna 1365; Heidelberg 1386; Leipzig 1409; Freiburg 1454; Greifswald 1456; Basel 1460; Munich 1472; Jena 1558. Wuerzburg, 1582; Göttingen 1737; Berlin 1810; Zurich 1833. Wuerzburg is celebrating this year its third centenary jubilee.

BERN (SWITZERLAND).—The law enforcing vaccination has been rejected by the popular vote. (There are some "cantons" in Switzerland which are just 500 years behind the present time, the dark shades arising from the mountains shortening the convolutions of the brains of the inhabitants).

PROF. GERMAIN SEE, the well-known French physiologist, has written an article (*L'Union Médicale*) on the effects of convallaria majalis, recommending the remedy highly in all diseases of the heart.

Original Communications.

ARTICLE II.

SEWER-GAS, AND ITS EFFECTS UPON HEALTH. A Lecture by BYRON W. GRIFFIN, M.D., Lecturer on Etiology and Hygiene, in the Woman's Medical College, of Chicago.

No one thing so much affects our physical well being as the air we breathe. Probably not one person in ten thousand is surrounded by perfect atmospheric conditions. The air is rendered impure by many causes. But it is safe to say that, among the harmful influences which can be named, none occupies a more important place than sewer-gas. "It is the *bête noire* of town residences." Many of the diseases which attack and destroy life among dwellers in cities are the result, either directly or indirectly, of this noxious agent, commonly known as sewer-gas. Sanitarians have already reached that place where, if the code of health laws they have framed could be promptly and efficiently enforced, many of the diseases now enumerated in the nomenclature of the medical man, would entirely disappear. Think, for a moment, of the large number of etiological factors entering into the causation of the different diseases met with in a large city. Adulterated food, overcrowding, filthy streets and alleys, improperly constructed dwellings, vitiated air, all these combine to swell the grand total of sickness and wretchedness existing in most large cities. Very few people, comparatively, take these causes of disease into account. Very few persons appreciate the dangerous character of sewer emanations. They move into a house which is tastefully papered and painted. The arrangement of the rooms is admirable, and the location, for a residence, unexceptionable. Concerning the sewerage they

have never stopped to think. "It must, as a matter of course, be all right in such a fine-looking residence." People say "Our doctor has never mentioned the subject of sewer gas. If it is of such vital importance, why should he not have spoken of it?" Why, indeed? The aches and pains, and languor and lassitude which people feel are more often directly traceable to sewer-gas poisoning than is commonly believed. The question, reduced to its lowest terms, is something like this: Where there are sewers, we usually can expect to find sewer-gas. This gas is poisonous to life and health. Its disposal is a matter of the most vital importance. It must be imprisoned in a sewer or be allowed to escape into and mingle with the atmospheric air, or it may find its way into dwellings and be breathed by the inmates. Here are three ways of managing this toxic agent. The last mentioned is disastrous to health, and should be prevented. In some cities, and Chicago has made the experiment to a limited extent, the plan of ventilating sewers is in vogue. Openings in the center of the street, protected by perforated iron covers, allow the escape of sewer-gas into the atmosphere of the street, and also, at the same time, permit the ingress of atmospheric air into the sewer. To my mind, this is a most sensible plan for diluting and rendering impotent a certain amount of sewer-gas poison. It is not claimed that this method of diluting sewer-gas is sufficient to meet all the demands. The plan is good as far as it goes, but it does not do away with the necessity for traps at sinks and closets. There are at present several kinds of apparatus which prevent the escape of most of the sewer-gas contained in the waste-pipes. That they do entirely prevent the entrance of sewer-gas into living rooms is probably not true, although the inventors of the various kinds of sewer-traps claim that no gas escapes.

Sewer-gas can not follow its victim into the open air, or if it does, its power is destroyed by the admixture of atmospheric air. It is a domiciliary foe. As such it must be met, and fought, and conquered. Either shut it out, exclude it entirely, or antidote its poison by atmospheric air.

Sewer-gas is not always a rapid poison. It does not always kill. Its approach and attack are frequently so insidious and

stealthy that the victim is not aware of his danger. People are often inhaling enough sewer-gas to affect the health, and at the same time unaware of its presence. This subtle and intangible character of sewer-gas is what makes it such a dangerous enemy. "Ordinary sewer-gas is composed of either or all of the following gases: Sulphureted hydrogen, carbureted hydrogen, carbonic acid and ammoniacal vapors, besides some others." Odor is not always a characteristic of sewer-gas. Physicians who are able to recognize the effects of sewer-gas poisoning, can do an incalculable benefit to their patrons by giving them timely warning. There is no need to exaggerate. The bold statement of facts is, or ought to be, enough. Diphtheria, small-pox, and scarlatina are carried on the "invisible wings" of sewer gas to different parts of the city. There can be no doubt that these formidable and ever-to-be-dreaded diseases are scattered broadcast through the agency of sewer emanations.

The blocks and flats put up in cities are frequently built *to rent*. The owner consults an architect, who draws the plans. Then a contractor undertakes the work of construction. Too often the contract is let to the "lowest bidder," without any thought of his real ability to do good work. He sub-lets the stone and brick work, and before the block is ready for occupancy a dozen or score of different firms have had a hand in the work of erecting the building. The plumber is under contract to furnish the lead pipes and to equip the building with all the necessary apparatus for carrying off the waste of domestic life, and for preventing the ingress of sewer emanations to the living rooms. Too often he employs cheap and unskillful workmen, who slight their work, and thus endanger the health of the future occupants of the building. In neglecting to make perfect joints, and to properly trap every sink and closet he is committing a crime against society of no small magnitude. The builder of a ship might better put a rotten plank into the hull, than that a plumber should do dishonest and unskillful work. The house is to be occupied for years to come.

A failure to construct properly that part of the building which is designed to carry away the refuse, is many times followed by fatal consequences. The plumber's work is, when the building

is completed, nearly all concealed from view. Only a system of house inspecting by men qualified for the work, and honest and trustworthy, and above receiving "hush money" for slighting their duties and closing their eyes to imperfect plumbing, only this can save us from the dangers of breathing foul gases from sewers. If the painter or glazier, or grainer fails to take the pains, in doing his work, he ought to take, nobody's health suffers thereby. The plasterer and roofer can do shoddy work, and still not endanger human life. That there are intelligent, capable and honest plumbers no one can deny; but the rank and file of this body of useful artificers are not so skillful and efficient as they ought to be. Professor C. A. Lindsley, of Yale College, affirms that "sewer-gas is so subtle that its presence is many times not detected, and yet so laden with the germs of disease that diphtheria, scarlet fever, typhoid fever, and other fatal maladies are the sure event to those who dwell in such air-poisoned houses." He further says: "It is a species of crime to permit property owners, through ignorance, or for any other reason, to go on unrestrainedly putting numbers of our fellow-citizens in danger by connecting houses with sewers without adopting the safeguards necessary for their protection." Sewer-gas is no myth. It really exists, and is in active operation day and night, lowering the vitality and vitiating the blood of thousands of unsuspecting people. "Men who will spend thousands of dollars in painting, gilding and carving their houses, will not spend one cent to make sure that the air they and their families breathe is not reeking with dangerous impurities, which would make their hair stand on end with horror could they see them magnified a few hundred times." Doctors know something about these dangers, although not half what they ought to know. Many contend that their mission and business is to cure, not to prevent. Sewer-gas furnishes them with employment from year's end to year's end. When sickness appears, the doctor is called in at an expense of hundreds of dollars; whereas, a few dollars spent in making sure of one's drains every year would obviate the necessity of a physician. Says Professor Chandler, of New York City, the eminent chemist: "It should be thought

of far more importance to clean one's drains and traps every year than to shake one's carpet and to paint one's house."

I will now give you a brief sketch of a case upon the authority of Professor Walter S. Haines:* A young man and two younger sisters were brought to their beds by sickness, and for the space of two months two physicians gave them constant attention, and all this while were absolutely ignorant of the cause of their prostration. The two girls lost for the time the senses of speech, hearing and sight, and both were attacked with with hemiplegia. The cases growing more desperate, another physician was called in. He, recognizing sewer-gas poisoning as the malady, caused the patients to be removed to another house, soon after which they began to recover, and ultimately regained their health. An examination of the drain of the house where these patients were taken sick showed that it was broken in numerous places, and gas was escaping. The main drain (usually placed under the house), frequently breaks from unequal settling of the ground on which it rests, by the weight of the walls, or because the joints are imperfect when made.

I learned the following facts in a conversation with Dr. F. A. Stanley, of this city: He was called to see a child sick with diphtheria. Two days later two more children belonging in the same family, were stricken with the same disease. He gave the cases his most assiduous attention. Nothing in the ordinary line of therapeutics was left untried. Drugs were of no avail. The children grew rapidly worse. Sewer-gas was thought of as the possible cause of all the trouble, but on account of the apparently excellent condition of the drainage, this idea was given very little attention. The children continued to grow worse. One died. The faith of the family in their physician was receiving a severe test. The second child soon followed the first. The third child was growing worse. Then, at last (and all these things just related transpired in a very few days), the fourth child was stricken down with diphtheria. Sewer-gas was once more thought of as possibly being an etiological factor in the causation of all this suffering. At an outlay of considerable

* I quote from "Sewer Gas and Its Dangers," by Geo. Preston Brown.

labor, the house drain was examined, with the expectation of finding it in good condition. On the contrary, it was found to be in a most imperfect condition. Where the waste pipe emptied into the main drain, a broken joint was discovered. The soil was saturated for yards around this leaky joint with the refuse from the kitchen and water-closet, and thus the enigma was solved. The drain was repaired and the sick children were removed to another part of the house. One recovered. Can there be any reasonable doubt that the blood-poisoning in these cases came from sewer emanations? In February of this year I was summoned to attend Mr. J. T., a salesman for a leading dry-goods firm of this city. He was strictly temperate in his habits. I found him on the third day after he had stopped work, with a temperature of 104.2-5° Fahrenheit, a rapid and somewhat feeble pulse, a tongue heavily loaded with brown fur. He said he suffered from no pain whatever. He complained principally of an almost uncontrollable feeling of languor and fatigue. Countenance pale, eyes sunken, breath offensive, perspiration excessive. I administered remedies to reduce the temperature, but succeeded only indifferently. This patient continued to grow rapidly worse, and within one week from the time of his first attack he was dead. Subsequent inquiry revealed the existence of a defective drain under the store where this unfortunate man was employed.

Additional corroborating evidence, in favor of the theory of sewer-gas poisoning, was found in the fact that several of the employés in this same store were, about this time, ill from what, as near as I could learn, was blood-poisoning. Chloride of lime had been used plentifully in the basement of this store, in the vain hope that the gods might be propitiated in that way. A liberal use of "jockey club" or "white rose" upon the person of an unwashed and malodorous tramp would be parallel treatment to this. It is probable that this man's life could have been prolonged had the necessary precautions been taken to see that the building, in which he spent more than twelve hours a day, was in proper sanitary condition.

The knowledge of this and like cases is, or ought to be, of practical benefit to every physician. The drainage and sewerage

of every building, containing a patient under the care of a medical practitioner, ought to be taken into account as a possible etiological factor in the production of many diseases. Scarlatina and diphtheria are diseases which every physician dreads to encounter. If sewer-gas poisoning has to do with either the causation or fatality of these maladies, then the doctor who ignores or fails to inform himself as widely as possible upon this subject, fails to do his whole duty to his patrons. Dr. Z. P. Hanson, of this city, gives me the following notes of a case recently attended by him: He was called to attend the son of a gentleman living on the West Side. The case was diphtheria, severe from the first. Extensive ulceration and sloughing of the tissues of the throat were among the unfavorable symptoms. A servant girl, living in this same house, was about this time attacked with diphtheria in its most malignant form. Sewer-gas was strongly suspected, and though the owner of the house was inclined to be skeptical in regard to the agency of sewer-gas as a cause of the sickness of his son and servant-girl, he carried out the doctor's wishes, and employed a plumber to investigate the matter. To the surprise of the father a leaky joint was found. It had been attempted to make a curved joint out of two straight pieces of tile, by adopting the miserable, slipshod and criminal device of putting in a section of a collar, and endeavoring to join the two straight pieces of tile. The cement which had been used to close the seams in this joint had disintegrated and crumbled away, and nothing was left to hinder the contents of the drain from passing into the soil and saturating it with the house-slops. Since repairing the drain no sickness has occurred in the house, whereas, before this, some member of the household was ill a good deal of the time. This revelation of the defective character of the drain seemed to explain the probable etiology of a peculiar and fatal case of peritonitis, which had occurred in this same house some time previous to this last attack of diphtheria just mentioned.

It devolves upon every physician, practicing medicine in localities where the health of his patrons is menaced by this unseen foe, to warn the unsuspecting and put the public (or as much of the public as comes within his jurisdiction) upon its guard.

I am not insisting upon anything against which there is any considerable amount of opposition. The American Public Health Association is no longer a struggling and unpopular society, existing only through the efforts of a few enthusiastic workers. It stands upon as firm a basis as does its sister society and coadjutor, the American Medical Association.

The chemistry of sewer-gas ought to receive a passing notice. Dr. Letheby, the author of that standard work on "Food" declares that in all sewer-gas, are found sulphureted hydrogen, sulphide of ammonium, and organic matter. Beside these gases, are often present nitrogen and carbonic acid. In order to understand the deadly character of sulphureted hydrogen, it may be well to say that air, "otherwise pure, containing one part in two thousand of this noxious vapor, if breathed by birds is fatal to life." In the Luxembourg Gardens, in the city of Paris, the crows at one time became so numerous and so troublesome that they were a source of infinite annoyance to frequenters of the garden. To shoot them would endanger the safety of the people who resorted to the place. The following plan was carried out with success: The gardener was furnished with a bag or jar filled with sulphuretted hydrogen gas. Attached to this was a long, slender tube, which was slyly pushed up into a tree containing a number of crows. When the tube was in the midst of the flock, the gas was permitted to escape, and numbers of crows fell dead from the effect of the gas. "Air, $\frac{1}{200}$ part of which is sulphureted hydrogen gas, will kill dogs, if breathed by them, and one part in two hundred and fifty will end the life of a horse."

It is believed that air containing $\frac{1}{100}$ part of this noisome gas is sufficient to prove fatal to human life when inhaled for any length of time. Do you wonder that those unfortunate people who live in houses into which this deadly vapor enters are sick and languid, and unfit for active work? Is it any wonder that we hear of cases of sewer-gas poisoning in the practice of medical men? Is it not rather a marvel that the harm done and the disease induced by the inhalation of this dreadful agent, is not more widespread, not accompanied with more fatal effect than is really the case. Its known effects are, when breathed in air containing it,

drowsiness, headache, vomiting, incoherence of speech, etc., "A simple trace of it in the air will often produce a debilitated condition resembling typhoid fever," says one recognized as an authority on this subject.

It is probable that sulphuretted hydrogen and ammonium sulphide, when inhaled, affect the every seat and center of vitality. The red blood globules containing the compound known as hemoglobin, are robbed of the oxygen they contain, and thus their carrying power, as distributors of this indispensable element, is destroyed.

There is no doubt in my own mind, that many cases of mental and physical fatigue, supposedly the result of over-work, are caused by inhalation of sewer-gas and air made impure from stagnation and respiration. Bright's disease of the kidneys is said to be caused by sewer-gas inhalation, on account of the high arterial pressure it produces.

Says Dr. De Verona, of Brooklyn: "Very small amounts of sewer-gas may develop fatal ailments on the one hand, and on the other hand, large amounts may produce but slight derangements, and above all, the poison once implanted in a human being is capable of reproducing itself ad infinitum."

The question arises, how shall we disinfect sewer-gas and render it inert? The use of sulphate of iron and chloride of lime and carbolic acid are practically useless in combating with poison in the form of sewer-gas. For the disinfection and deodorization of open drains and even sinks, these drugs are pre-eminently efficacious if used with thoroughness and in sufficient quantities. But to prevent the ravages of sewer-gas by disinfecting water-closets and kitchen sinks with any or all of these drugs, would be unavailing, unless, indeed, every householder in the entire district where sewers were placed should disinfect his premises. Could this be done, disinfection might be practicable. But its non-feasibility is apparent when we remember the numbers of ignorant and filthy people who live in every large city, and who would not comply with any such rule as this unless they were actually obliged to do so. We need not inhale sewer-gas in any appreciable quantity if the plumbers and sewer builders will do honest work. In England the subject of house drainage has

received closer attention than in this country. Trans-Atlantic sanitarians found out years ago the dangerous character of sewer-gas, and with the thoroughness which distinguishes the English mind, have been studying out a way to banish it from their houses.

It should be borne in mind that the public, the lay members of the medical profession, derive most of their knowledge of hygiene and sanitary medicine from the physicians who are called into their families. These patrons will never think of asking in regard to the physiological action of eucalyptus globulus, or about the manner in which nux vomica affects the nervous system and digestive apparatus. But questions concerning ventilation, house drainage, diet, clothing, exercise, etc., are sure to be propounded. It should not be considered beneath the dignity of any medical practitioner to make himself familiar with all the details of house drainage and plumbing. Until this is done, he can not appreciate and measure the evils that arise from defective sewers and improperly constructed drains. It is too often the case, that men in this city, as well as in others, are licensed to build sewers and to equip dwellings with drains and waste-pipes, and traps, whose knowledge of the laws of natural philosophy is limited to the single fact that water naturally runs down hill. Until this slip-shod system of public service is done away with, and men are selected for this kind of work whose qualifications are of a higher order, we shall not see any marked improvement in house drainage.

257 *West Madison St.*

ARTICLE III.

AMNESIC APHASIA FROM WOUND OF LEFT ANTERIOR LOBES OF CEREBRUM AND LOSS OF BRAIN SUBSTANCE. PARTIAL RECOVERY.

E. Wyllys Andrews, A.M., M.D.

Michael Jordan, a young man æt. 25, while walking upon the railroad track near Joliet, Ill., was struck by a rapidly-moving train, and thrown from the track into a ditch, where he was found

insensible. Dr. Chas. Richards, of Joliet, who was called to see the injured man, gives the following account of his condition:

"On May 16, 1881, I was summoned to Minonka to attend a man who had been struck by an engine. I found him in a comatose state, the result of a compound comminuted fracture of the frontal bone, upon the left side. Opening some three inches in length, and valvular. After carefully examining the wound, I found a portion of bone driven into the brain to the depth of one inch. At this examination about one tablespoonful of brain substance exuded, and was washed away while removing the clotted blood from the external parts. After removing the fragment of bone, I dressed the wound by bringing the integument together with sutures and applying cold water compress. I left him, expecting him to die before morning, but was notified on the following day that Michael Jordan was alive, and, to all appearances, better. I visited him about 2 p. m., and had him removed to Joliet, where he was under my care until he was removed to Chicago. At my second visit he seemed to know what was said to him, but could not speak. This condition lasted for ten days, when he was able to say some words, but could not converse. He soon became able to tell his name, and place of residence in Chicago, and could say "Yes," and some few other words. During the time he was under my treatment I removed, in all, about two ounces of brain matter, after which an abscess formed near the posterior edge of the fracture. This discharged freely, and was treated with carbolic acid and the continuous application of cold water. At this time Jordan's mind was, in a measure, lost, and he did not seem clearly to realize anything."

Jordan remained under the successful treatment of Dr. Richards until convalescence was well established, when he was brought to Chicago, and cared for in the County Hospital for a number of weeks. At the time of his discharge the wound was nearly healed, and, when he fell under my observation at the South Side Dispensary, in July, only a small granulating surface required any local treatment.

At this time the patient's cerebral symptoms were remarkable in showing the decided impairment of one function—viz.: articulate speech—without serious injury to any other faculty.

As experiments upon lower animals can furnish no knowledge of language as a localized function, clinical reports of such cases as this are the only sources of knowledge regarding the exact location of speech centers. The want of post mortem evidence in this case deprives it of much of its value in evidence; but from external inspection, it is clear that the region of the excavation caused by the intruding fragment of bone, and the cavity of the subsequent abscess, must have been nearly in the usually-assigned region of speech, *i. e.*, the island of Reil, and the third frontal convolution on the left hemisphere of the cerebrum.

Jordan had been a man of weak intellect, bordering upon imbecility, so that his mental condition following the accident was but little worse than of old.

The cerebral symptoms began with coma, lasting for a few hours, followed by aphasia complete for ten days, and later slowly improving.

When first seen in Chicago, three months after the injury, the patient was quiet and passive in demeanor. Bodily vigor was unimpaired. The power of recollecting words was in a measure gone, so that utterance was extremely slow and labored, seemingly the result of intense effort and concentration of his feeble will. The patient disliked exceedingly to be put to the strain of uttering a response, and never spoke spontaneously. He seemed to labor intensely in uttering his monosyllabic replies. As to his mental power it was said by his family that he was not markedly worse than before the accident.

He presented upon the left side of the skull a depression back of the frontal eminence, two inches by an inch and a half, covering portions of the frontal and parietal bones. This corresponds to the size of the fragments of bone removed in the course of Dr. Richards' treatment. The scalp was depressed at this point one-half an inch, and pulsated visibly with the contents of the cranium.

The patient's friends informed me that at first he was subject to fits of anger, from which he is now mostly free, and that at such times the pulsations in the injured place were more noticeable, and the depression became a tumor.

As observed at a dozen different interviews, his aspect was that of childish imbecility. All his replies were rational and consequential, but his mind was seemingly a vacuum when he was not roused or called to concentrate his attention. There were no hallucinations. Morbid action seemed rather in the direction of weakened or depressed mental power. The only treatment adopted was occasional doses of bromides and cannabis, and a shield of gutta percha moulded upon a plaster cast to fit the concavity of the injured place and maintain a uniform pressure. This was designed partly to prevent the occurrence of outward bulging in the form of *hernia cerebri* or aneurism, and partly to guard the exposed brain from accidental puncture or concussion. The pressure of the apparatus, which was retained by an elastic cord worn under the hair, was a source of much comfort to the patient.

The loss of speech was now the most prominent symptom in which Jordan's condition differed from that before the injury. In January, 1882, a considerable improvement had taken place in the use of words, so that an intelligent answer would promptly be returned by the patient to any question requiring only "yes" or "no." Other questions, also, would be responded to with short replies, and there never appeared to be any incoherence in his expressions. A vocabulary of between one hundred and fifty or two hundred words seemed to be at his command, but any word would be repeated when given him without any defect of articulation. In February, since which time the patient has not been seen by me, the improvement was still more marked, the man's command of words being evidently more perfect as compared with his previous condition, and resembling that of a child in that he spoke mainly the names of objects without linking them into sentences.

Inasmuch as nearly total destruction of the left region of speech must have taken place, it is probably to be concluded that the right anterior cerebral lobes must have taken on the same function in a compensatory degree, unless it be supposed that in this case the injury of the island of Reil was something in the nature of plastic or other deposit, which became absorbed in the later stages of the recovery.

Society Reports.

ARTICLE IV.

CHICAGO MEDICAL SOCIETY.

Stated Meeting, held August 7, 1882. Dr. G. C. Paoli, President *pro tem.*

TWO CASES OF CIRRHOSIS OF THE PANCREAS IN PRIVATE PRACTICE, BY DR. C. W. EARLE.

Case I.—Mr. G. E., æt. sixty-five, in November, 1880; temperate; no history of syphilis. Began to emaciate at beginning of 1880; did not care to eat meat; was weak, short of breath; tongue white; and there was a murmur with the first sound of the heart. Slight pain manifested on pressure at the epigastrium. Was occasionally sick at the stomach. Legs slightly œdematous. Stools black; occasionally containing little lumps of blood and mucus. No diagnosis possible from the symptoms present. Treatment consisted of tonics, mineral acids, and a generous diet. Dr. N. S. Davis saw the case in consultation. Both came to the conclusion that there was some grave affection of the digestive system which would probably result in death. Patient died in the course of a month.

Post-mortem.—Marked whiteness of all the tissues. Pancreas white and indurated. It was examined by Dr. S. J. Holmes, who found it contracted; abnormal in consistency; fibrous to touch. The microscope showed much increase of connective tissue, with obliteration of certain glandular vesicles and atrophy of others, resulting from the compression exerted by the newly formed connective tissue. There was slight, fatty degeneration of the parenchyma of the kidney.

Case II.—Mr. S. K. R., æt fifty-seven. Two years ago began to fail in strength, but continued business till within two months of his death. Had had hæmorrhoids for five or six years. Had been troubled with indigestion for some years, and had a bilious attack a year ago. In February, 1882, he passed considerable blood by the rectum, and continued passing blood in his stools, and suffered much pain at the same time. Lost sixty pounds; skin white; pulse, respiration and temperature normal. Antipathy to meats; gained a few pounds under treatment with tonics, mineral acids, pancreatine and pepsin. He had alternate diarrhœa and constipation; pulse was as low as 55 at times. Later he was treated by massage, with relief of his bowel affection. Pain remained near the ensiform cartilage. He now expectorated a large amount of mucus, and vomited a large amount of coagulated blood; probably two pounds. He died June 30.

Post-mortem.—The abdomen alone was opened. There was considerable fat between the integument and abdominal muscles; whiteness of tissues. The pancreas was hard, enlarged, and filled with spots, plainly seen with the naked eye. The bowel was somewhat contracted in some places; no trace of disease of the rectum. The hæmatemesis had probably been caused by pressure of the head of the pancreas upon some blood-vessel, but there was no breach of continuity in the mucous membrane of the stomach.

The pancreas measured nine inches in length, was denser and larger than normal, and presented numerous yellow-white spots one-fourth or one-half inch in diameter. Marked increase of the pancreatic connective tissue.

Dr. L. C. Waters reported a complicated case of scarlatina, which came under his treatment February 23, 1882. The patient, æt. eight years and three months, had a chill, a soreness of the throat, a temperature of 104 2-5, and a pulse of 126. There was constipation and vomiting. The tonsils were swollen. A scarlatinous eruption appeared the next day, when the temperature arose to 105 9-10, and there was delirium. In the course of eight days, under ordinary treatment, the patient was better, and the eruption had disappeared. On ninth day, patient fell

worse; his pulse beat 150 a minute; the temperature was 102; there was fœtor of the breath, and there was considerable swelling of the throat externally, extending to the cheeks on both sides. A false membrane formed in the throat. Upon removing a portion of this, there was bleeding from the exposed surface. Twenty-eight hours later the patient was dead, no treatment being of any avail.

The treatment adopted in this case was as follows: At first a cathartic was given for the constipation. Patient was sponged thoroughly all over the body with tepid water three times a day. Cold applications were made to the head. Quininæ sulphas in doses of two grains every four hours; tinct. of iron and potassii chloras were also given. Cold applications were made to the throat. The doctor regarded the last complication as diphtheria, which was sometimes liable to arise in cases of scarlatina.

Dr. R. N. Isham reported a case of rupture of the left kidney, with autopsy, and the society adjourned for the rest of the summer.

ARTICLE V.

IMMIGRATION AND DISEASE.

The following report from the Supervising Inspector, and the Secretary of the National Board of Health, is worthy of being placed on record, for the purpose of showing the relations of immigration to the prevalence of diseases of an infectious and contagious character.

The facts stated show clearly enough that our government should enforce more rigidly regulations calculated to prevent the importation of diseases. And if such enforcement should deter some persons from coming, it would be no injury to any legitimate interest on this side of the Atlantic.—ED.

OPERATIONS IN THE ILLINOIS DISTRICT DURING THE PAST MONTH.

SPRINGFIELD, ILL., AUGUST 4, 1882.

SIR:—I have the honor to submit the following report for the month of July, of the operations of the Immigrant-Inspection Service, N. B. H., in the district under my supervision.

During the month an aggregate of 21,000 immigrants were inspected by the assistant inspectors, who found about sixteen per cent. of these unprotected, liable to contract small-pox and to propagate the disease. The necessary precautions were taken with all of these cases, as well as with one case of varioloid found in transit, and several convalescents, one being an immigrant removed from a train and treated in the small-pox hospital at Rochester during the month of June.

Although there is a marked improvement in the character of the protective work done on shipboard, as compared with that noted on beginning inspections, this is by no means uniform, as will be seen by the following extracts from the assistant inspectors' notes of careless, imperfect or neglected vaccinations and revaccinations:

Steamship Republic.—Practically worthless; no adult vaccinations.

General Herder.—None showed successful vaccination.

Strasburg.—Very poor; only eleven successful out of 340 vaccinations—result evidently due to want of care on part of steamship surgeon.

Hermann.—Only thirteen properly protected out of 410; the vaccination performed on shipboard very unsatisfactory. All passengers provided with protection cards.

[These vessels, the *Strasburg* and *Hermann*, are regular Baltimore packets, and the latter, at least, is known to have been the means of introducing small-pox into five localities in Illinois during the past spring.

It might be profitable to inquire to what extent such vessels and the neglect of their surgeons are responsible for the present prevalence of small-pox in Baltimore.]

Rhynland.—None showed successful vaccination on shipboard.

Mosel.—No successful vaccination by the ship's surgeon.

Jason and *Sardinia.*—No ship vaccination met with in passengers from either vessel.

St. Germain, *Ethiopia* and *Wieland.*—None vaccinated on shipboard; many totally unvaccinated children provided with ship's protection cards.

Main and *Surrey.*—Nearly all unsuccessful.

Britannic and *Italy.*—Vaccinations on shipboard generally poor.

Devonia and *Warwick.*—Over one-half of the passengers by these two steamers were found to require vaccination, although all were furnished with ship's surgeon's cards, which, they had been told, would prevent any other physician from interfering with them.

City of Brussels.—Extremely little attention appears to have been given to the examination of the immigrant passengers while on board. One of these passengers, a Finn, twenty-eight years old, was found on a train nearing Chicago, July 24; was in the eruptive stage—eruption probably 80 hours old. He presented a vaccination-protection card, signed William Gibbons, Surgeon, *SS. City of Brussels*, and dated July 20, 1882.

Illinois.—A few only vaccinated.

Nebraska.—Poorly revaccinated.

Indiana.—Two-thirds required revaccination. No cards had been furnished any immigrants.

Concerning these cards, it is noted that in many instances they bear no name of steamship or line. One such, presented by a lad thirteen years old, and without the slightest evidence of vaccinal protection, bore the name of John W. Watson, Surgeon.

On July 28, among passengers by the steamer *Erin*, were found ten convalescents who had had small-pox within a month before leaving Ireland.

Notwithstanding that the aggregate number of inspections was less in July than in the preceding month, the relative number is much larger. Immigration has probably fallen off one-half since May last, and it is believed that of the total number now arriving, very few find their way into Illinois or cross the State without being subjected to one or more rigorous inspections. The

reports of small-pox outbreaks in the region west of the Mississippi river have been notably less during July, while in this State there has not been a single case reported during the month, outside of Chicago. The following table shows the steady decline of the disease in that city:

Month.	Cases Reported.	Deaths.
April.....	321	92
May.....	281	65
*June.....	124	29
July.....	44	11

* Inspection begun June 1.

At the close of the month there were only ten cases under treatment in the city, and one in the State at large.

In other districts of the service it is observed that increased familiarity with the work has secured increased efficiency, and thus materially lightened a labor which was found to be very onerous during the first month. For example: The vaccinations found to be necessary among passengers arriving over the Grand Trunk road in June were very nearly 36 per cent. of the total inspections. During July, owing to the increased number of vaccinations at Port Huron, Mich., this percentage has been reduced to 8.3 per cent.

Many cases of cholera infantum, measles and whooping-cough are met with by the inspectors, who, so far as time and opportunity serve, render such medical assistance as is necessary.

The railway service has continued to afford every desired facility to the inspectors, and, aside from the advent of an occasional unannounced train over a connecting line, every emergency has been promptly met. The coaches for immigrant passengers are kept in good sanitary condition, and the general welfare of these people seems to be consulted on business principles.

Appended is a table showing the number of inspections and of vaccinations by each inspector for the period between June 1 and July 31.

I am, sir, very respectfully,

JOHN H. RAUCH, M.D.,
Supervising Inspector.

DR. THOS. J. TURNER, U. S. N.,
Secretary N. B. H.,
Washington, D. C.

IMMIGRANT-INSPECTION SERVICE, N. B. H.

ILLINOIS DISTRICT.

Inspections and Vaccinations by the Assistant Inspectors: June 1—July 31, 1882.

INSPECTORS.	STATIONS.	JUNE.		JULY.		JUNE 1 to JULY 31	
		No Inspct'd	No Vacc'd.	No. Inspct'd	No. Vacc'd.	No. Inspct'd	No. Vacc'd.
B. E. Starkweather, M.D	P. Ft. W. & C R	5895	592	3452	398	9347	990
Jas. G. Kiernan, M D.....	L. S. & M S R R	4641	415	1828	547	6469	962
W. F. Bundy, M.D.....	M. C. R. R.....	7515	1565	5835	1484	13350	3049
* J. J. Farrell, M.D.....	Gr. Trunk R R	4028	1450	2551	212	6579	1662
* F. C. Newton, M.D.....	B. & O. R. R...	2439	242	2398	498	4837	740
† E. S. Elder, M.D.....	Indi napolis....	992	43	3079	268	4071	311
W. B. Conery, M.D.....	E. St. Louis.....	1511	44	1784	41	3295	85
Totals.....	....	27021	4351	20927	3448	47948	7799

* Inspections began June 1. † Inspections began June 20.

ARTICLE VI.

AMERICAN PUBLIC HEALTH ASSOCIATION.

We have received the following notice from the Society of this important organization, and hope it will receive due attention from our readers:

BOSTON, AUGUST 10, 1882.

The American Public Health Association will hold its Tenth Annual Session at Indianapolis, Ind., commencing Tuesday, October 20, 1882.

Papers will be presented on the different action of disease in White and Black Races, The Removal of Excreta, Heredity, Sanitary Associations, Vaccination, Intermittent Fever in New England, Sanitary Organization, Cattle Disease, etc., etc., with Reports of Committees on the Prevention of Venereal Disease, Compulsory Vaccination, The Management of Epidemics, Statistics, Cattle Diseases, National Museum of Hygiene, Incorporation of the Association, and Necrology.

Terse, strong, practical papers on sanitary subjects are invited, and more time will be devoted to discussion than has been allotted at former meetings.

Papers offered to the Association become its exclusive property, and are copyrighted.

Gentlemen who propose to present papers, are respectfully requested to notify the Secretary at once of their intentions, and to

give the titles of their papers that they may be assigned a place in the programme.

Present members of the Association are especially urged to every effort to increase its membership. Names proposed for membership should be sent to the Secretary.

Two proposed Amendments to the Constitution come up for action at this session.

It is expected that Vol. III. of the transactions will be ready for distribution at or before the meeting.

Information in regard to transportation will be furnished by the Indianapolis Local Committee at an early date, and by a later bulletin from the Secretary, if required.

By order of the Executive Committee,

AZEL AMES, JR.,

Secretary.

ARTICLE VII.

THE TRI-STATE MEDICAL SOCIETY.

As was stated in a previous number of this journal, the above named society holds its eighth annual session, at Terre Haute, Ind., on the 26th, 27th, and 28th of September, 1882. The following statement sent us by the Secretary may be of interest to such as desire to attend the meeting:

PLEASE NOTICE.

1. The sessions will be held in DOWLING HALL.

2. Hotel rates for members at the Terre Haute House, $2.00, reduced from $3.00; at the National Hotel, $2.00, reduced from $2.50. Any other accommodations necessary will be arranged for by the Local Reception Committee.

3. Arrangements for special rates have been made with the railroads centering here and their connections, as follows; Vandalia Line, I. & St. L., C. & E.I., E. & T. H., L. & N., Ills. Central, W., St. L. & P., one and one-third fare for round trip. The P., C. & St. L., Cincinnati Southern and I. B. & W. give round trip excursion rates by application to local agents.

☞Members of the profession, desiring to take advantage of these arrangements will please apply to Dr. J. E. Link, Chairman of the Committee of Arrangements, who will furnish full particulars.

4. Members are requested to be present at the first session, as the regular business will begin without delay.

5. Each session will be called promptly.

6. Papers are limited by rule to twenty-five minutes.

7. Time for discussion will be given after each paper, or series of papers.

8. Authors, unavoidably absent, will send their papers to the Secretary during the first day of the meeting.

9. All physicians will, on their arrival, apply for tickets of membership issued by the Secretary.

10. Volunteer papers are solicited, and arrangements will be made for their presentation.

LOCAL COMMITTEE OF RECEPTION.—S. J. Young, J. D. Mitchell, L. J. Willien, W. H. Roberts, G. W. Crapo.

PELLETURINUM TANNICUM.

The alkaloid pelleturinum, lately extracted from the *cortex radicis granate*, is, according to Dr. H. Witt (St. Petersburg *Medical Weekly Journal*, April, 1882), the most certain of all our remedies for tapeworm. In five cases in which, for a number of years, all the usual remedies had proved themselves to be unsuccessful, about twenty-two grains of pelleturinum tannicum, followed by a tablespoonful of castor-oil, had the effect that the dead tapeworm appeared unbroken in the stool. The remedy is easily administered, as it is perfectly tasteless.—*Med. and Surg. Reporter, Phila.*

Foreign Correspondence.

ARTICLE VIII.

PARIS, JULY 22, 1882.

EDITORS MEDICAL JOURNAL AND EXAMINER:

Without pretending to give a complete account of any individual clinic here in Paris, I will endeavor to arrange a few items from my note-book, embracing general information, as well as particulars of clinics.

Foreign medical men are everywhere cordially received in Paris. All the hospitals and clinics are open to them free of charge, and on the presentation of professional cards special attention is invariably afforded. Even the histiological laboratories, with their advantages, are also at their service. If a stranger wishes to work in the histiological laboratory of the College of France, under Bauvier, he has only to present his card as physician, enter his name, and if all the tables are not occupied, he can begin work at once, provided he has with him his microscope. It is, however, absolutely essential to understand French. In the German and Austrian hospitals nearly every one speaks more or less English, but that is by no means the case in France. It must, however, be readily conceded that a person not understanding the language of the hospital is at a decided disadvantage.

One of the first places that attracts a medical man in Paris is the Hospital of Saltpetriere, the scene of the labors of Charcot. He finished, two weeks ago, his first course in the capacity of Professor of Nervous and Mental Diseases of the Faculty of Medicine. The clinic was given on Thursday and Sunday mornings, and lasted from half past nine to eleven o'clock; it was given in a large hall completely darkened, and lighted with gas.

[illegible] convenience for screen projections and illustra- [illegible] provided, and dexterously manipulated by his numerous [illegible]. I had the pleasure of witnessing some of those results [illegible] on the ovaries of which I had previously read, but [illegible] before seen illustrated with such marked results. I wish I [illegible] to the readers of the JOURNAL some realization of the [illegible]. One of the first patients presented was a young girl of [illegible] appearance. The only visible sign of a departure from [illegible] physiology was a persistent inward contraction of right [illegible]; she was, however, wearing a ceinture which produced [illegible] in the region of the ovaries. The ceinture was removed, [illegible] immediately a violent fit of coughing was developed, which, [illegible] the short time that it was exhibited, was positively pain- [illegible] to observe. The ceinture was re-applied, and the coughing [illegible] as by magic. Another patient was presented, with whom the removal of the ceinture was followed by the regular develop- [illegible] of the various stages of epilepsy, exhibiting all the violence [illegible] agitation, frothing at the mouth, rapid, powerful muscular [illegible], followed by the most complete opisthotonus. The application of the ceinture cut short these paroxysms at any particular stage of their development with the most remarkable promptitude. Some half dozen patients were presented, illus- trating in a similar way the same influence. In one case, when the removal of the ceinture was not followed immediately by an [illegible] of the epileptic attack, the assistant gave a very slight but rapid tangential blow of the hand in the small of the back, and immediately the epileptic attack began, culminating in the cata- leptic condition.

One case was exhibited of unusual interest, on account of its history. Becoming pregnant, it was found that the points on which pressure had to be exerted in order to relieve the attacks of epilepsy, gradually ascended as the pregnancy developed.

The ceintures which are used at the Saltpetriere are of various forms in many respects similar to trusses. Although this partic- ular branch of medicine bears no immediate relation to the branch to which I am giving special attention, as Messrs. E. H. Sargent & Co. authorized me to purchase for them anything which I should think of special use to the profession, an opportunity will

be afforded of seeing the latest modifications of these ceintures in Chicago in a short space of time.

On another occasion a series of hypnotic cases were presented. Your readers, I know, are acquainted with the facts, but I confess it was the first time I had ever seen them developed, and as I saw two or three other phenomena developed which I had not before seen in print, I deem it of interest to narrate them.

The wand by which the magician—for it seemed like magic—developed the hypnotic state, was the little percussing hammer used for the detection of the tendon reflex. Holding the hammer like a pen in his hand, and passing two or three times in different directions over the face of the subject, the hypnotic state was developed. All the patients who were thus acted upon were previously afflicted with rigidity of one or more of their limbs. Immediately the hypnotic state manifested itself, the most complete flaccidity of the various members occurred, except those that were rigid before the hypnotic condition. A change, however, from the flaccid condition of the various members to that of rigidity, was produced immediately on rubbing the muscles which it was desired to contract. This contraction was very readily removed by gentle friction applied to the opposing muscles. When, however, the same influence was brought to bear on the limbs in a state of contraction before the hypnotism, it failed completely.

On lifting the eyelids so as to allow light to enter the eye during the hypnotic condition, a condition of catalepsy was immediately produced. This could be provoked unilaterally or bilaterally, at the will of the operator. The patient was awakened from sleep by simply blowing in the face.

I saw M. Dumontparlier produce similar effects in his wards. He set me to look at one of his patients in the face, and in less than half a minute she fell into the most complete hypnotic state. He put a bandage over her eyes, and another patient was observed to be in the same hypnotic condition. To this latter patient he applied, with a bit of cotton attached to a stick, a small quantity of ether to the dorsal part of the wrist. The arm flew to the most complete extension like a shot from a cannon. The same was applied to the other arm with a similar result.

This condition was relieved by blowing over the hand. Then a little ether the patient being still in the hypnotic condition—was applied to the umbilicus, and immediately the most complete opisthotonos was developed. This condition was immediately relieved by blowing over the toes with a bellows.

Going to the former patient, who still had the bandage over the eyes, she manifested signs of wakefulness. M. Dumontpar then rubbed her eyes a little, and pressed on a point in the left temple on an imaginary line connecting the occiput with the point of the nose, and she became unable to utter her own name or to give the name of any object that was presented to her. I trust you will allow me to mix up matters a little, I would like to add that I saw a few days ago, in the wards of M. Fournier, a case of syphilitic affection of the brain, in which the peculiar expression of countenance which the young man developed in trying to utter his own name—which he was utterly unable to do—forcibly reminded me of the expression of countenance of the partially hypnotic girl under the influence of pressure in the temple. The syphilitic patient nodded assent when his name or his age was given, with an expression of countenance exactly similar to the expression of the partially hypnotic girl.

This is not, as I said above, an account of any one individual clinic, so I will conclude by appending Charcot's table of

TABETIC SYMPTOMS.

SPINAL.

Sensitive.—Lancinating pains; anæsthesia or hyperæsthesia (circumscribed); loss of the notion of position of limbs; sign of Romberg. *Muscular.*—Absence of reflex of knee; incoördination.

CEPHALIC.

Sensitive.—Lancinating pains; circumscribed anæsthesia or hyperæstheria; gray atrophy of optic nerve; tinnitus aurium. *Muscular.*—Myosis spinal sign of Argyle Robertson; paresis of muscles of eye; diplopia; falling of the eyelids.

VISCERAL.

Disturbance of the functions of the stomach, intestines, retina, anus, bladder; disturbance of the bladder; spasm of the larynx.

ATROPHIC.

Muscular atrophy; osseous lesions, especially in the joints (these lesions were illustrated by a large number of cases and pathological specimens); lesions of the skin; tona.

R. TILLEY.

ARTICLE IX.

PARIS, July 31, 1882.

How different the surgical clinics in Paris are from those in Vienna—Professor Bilroth's clinic being taken as a sample of the latter. In Prof. Bilroth's clinic every assistant knows just what he has to do and it is done without noise or confusion, the operator seldom having to ask for anything. Carbolized water, about 2½ per cent., being in such abundance that the floor is often covered with it. In Paris the public clinics generally are marked by a great deal of confusion—exception being made to the clinic of Prof. Charcot. The larger eye clinics exhibit this confusion to perfection. The smaller eye clinics, however, are conducted with much greater order.

Electro-cautery is being used extensively here in various affections of the eye, I might almost say promiscuously. It is used in entropion, extropion, pannus, leucoma, ulcers of cornea, scleritis, anterior staphyloma, conical cornea, and detachment of the retina. It is exceedingly difficult, as every one knows, to ascertain the relative value to be attached to these operations in cases thus seen. The one advantage in many cases seems to be that it takes only a very little time to complete the operation, an advantage not always on the side of the patient. The operations on the lids, here in Paris, are not well done, and of all the thermo or electro-cautery operations it struck me that the operation for entropion of the lower lid was the most unsatisfactory; it leaves a most ugly wound for a long time after and the result must be very uncertain. I had the opportunity of demonstrating Dr. Hotz's operation for entropion in one of the best smaller clinics. The result was so satisfactory that on visiting the same clinic a week or so later I was shown two other cases in which the same operation had been

performed, and the *Chef du Clinique* expressed himself greatly pleased with the operation. The only objection, which as you will see is no objection at all, is that it takes quite a little time to accomplish it thoroughly. I have spoken with several oculists here in Europe about this operation and have been astonished how few people who had read the description had properly understood and appreciated the main points.

In detachment of the retina M. De Wecker is using electrocautery two rows of points in the lower cul-de-sac—so, : : : : : : : ; whilst M. Abadie is thrusting a needle into the eyeball, attaching it to a battery and applying the other pole to the forehead, expecting in this to effect electrolysis. If this operation effects anything it certainly will not be by electrolysis; it would be absolutely impossible with a battery such as was used and the poles so far apart to effect such an operation.

Pilocarpine for detachment seems to have taken a back seat. I have seen pilocarpine, however, administered subcutaneously, to dispensary patients, and the patient sent into the waiting room to spit and sweat until he was tired and then walk home in the rain. I do not say this to recommend the practice, and I must say, in justice to the majority of the clinics, that I only saw it in one of the largest clinics. A good deal more attention, here in Paris, is given to the association of constitutional affections in affections of the eye than in Vienna. A good deal more attention is paid here to the field of vision. This is probably due to the researches of Charcot.

M. Paen is spoken of as one of the most successful surgeons in Paris. Consequently I availed myself of the opportunity of witnessing two of his ovariotomy operations. It is, of course, not necessary to describe the operation, but I will briefly pass in review such points as seemed to me noteworthy.

The chair or table is portable. A similar one he always takes with him for his operations in the country. Anæsthesia being produced, the part of the table at the foot is removed and two wire troughs are attached for the reception of the legs. The hands and feet are fastened to the table. The cover of the table being removable and divided down the middle, the patient is removed to bed with great ease. The tongue is drawn forward with a pair

of forceps from the commencement of the operation. No carbolic acid is used. In place of it a solution of the peroxide of hydrogen in water is used as a spray. The apparatus for the spray is placed at about four feet from the patient, and the peroxide of hydrogen solution is supposed to contain six volumes of oxygen to one of water. His special direction is that this solution should be absolutely neutral. It is difficult to see how this can operate as an antiseptic, but I should observe that the same preparation is being used in several eye clinics.

The preliminaries of shaving, washing and covering the abdomen being accomplished, a long bold incision is made and an immediate and abundant use of hæmostatic forceps is exhibited. In the two operations I saw there was scarcely enough blood spilt to tinge the pail of water. As soon as the abdomen is open the wound is carefully protected by his assistants with clean soft napkins. He uses sponges, of course, but uses a good many more *soft clean napkins*. One of the assistant sisters always stood by a pile of about two dozen and ready to hand them to him at a word. A napkin, very soft, was even put into the abdomen instead of the sponge. No napkin was used twice for anything. There was nothing particularly noteworthy about the tying the pedicle. After the section, however, even part of the abdominal stump was taken up by the hæmostatic forceps previous to the final ligature. The ligatures were of silver. In stitching the abdomen the stitch was always taken from the inside. There was nothing peculiar or superior about the bandaging.

I paid a visit to the manufacturer of the peroxide of hydrogen in order to inquire something about the condition of acidity on which M. Paen seemed to place so much importance. He assured me that it was absolutely impossible to keep peroxide of hydrogen unless the solution was slightly acid. The difficulty being that on the slightest elevation of temperature the corks would fly and the bottles burst. I have since had some experience of that, for I bought of him a small quantity and requested of him to have the cork tied in. It was not tied in, however, and the consequence was my peroxide of hydrogen was spilt. The manufacturer here makes it at what he calls sixteen volumes; or

one volume of the solution, if the quantity of peroxide of hydrogen contained in it were dissolved, would yield sixteen volumes or equal parts of oxygen. He acknowledged that it was not certain, but he would guarantee it to contain twelve volumes.

Professor Hayem, of Hôpital San Antoine, has been using it for some time past for the preservation of diabetic urine, which he makes use of as a diluting fluid for counting the blood corpuscles.

A system of what is called "Gavage" is being practiced here by M. Dujardin Beaumetz. This is practiced principally for consumptive patients who have no appetite. It consists in passing food into the stomach by means of a short œsophageal tube. The food consists of a thick fluid composed of meat specially prepared, dried and stirred up with milk. The preparation of the meat consists in cutting away as much as possible of the cellular tissue, warming it in water hot enough to cause the fat to rise to the top and then drying it at a temperature of 45 centigrade. The patients are said to gain weight and improve greatly.

A patient of considerable interest of late in Paris is a young woman at Hôpital Beaugon. Until lately she had been in a condition of absolute unconsciousness extending over a period of seventy-four days. During this period she gave birth to a four months' fœtus without any apparent effort and without any modification of the lethargic condition. She was first found in the street unconscious. At the suggestion of Prof. Charcot, cold douches were administered and restored consciousness. Electricity and various other expedients had previously been tried without effect.

R. TILLEY.

THE ideas of suicide originate in the circonvolutions of the brain, resulting from lesions in the frontal and parietal convolutions. So says Dr. Auguste Voisin.

Domestic Correspondence.

ARTICLE X.

A NEW WRINKLE IN HYPODERMIC MEDICATION.

ROCKFORD, ILL., AUG. 6, 1882.

MESSRS EDITORS:—A somewhat troublesome abscess occurring to a patient recently under my care, with cervico-brachial neuralgia, has suggested a simple measure whereby this common and pestiferous result may be obviated.

Of however trifling import these abscesses may seem, instances are not wanting, where, in dilapidated or cachectic subjects, erysipelas, pyæmia, gangrene, or extensive sloughing have been their outcome. No "trifle" should ever be disregarded, in aught pertaining to the welfare of a patient.

The cause of these abscesses is doubtless always due to the introduction of some foreign body, however minute, along with the injection. In a word, the cause (exciting) is purely mechanical. The remedy is necessarily the same, and consists of a device to secure complete filtration of the injecta, destroying also bacteria and germs.

Placing a very small pledget of carbolized absorbent cotton into the upper cap of the syringe, which is readily done by unscrewing it from the tube, the liquid is introduced, the cap screwed on, and the air expelled by pointing it upward and slowly pushing the piston forward till the last bubble escapes. The needle may now be attached, and the injection made. The minutest particle of foreign material is thus inextricably entangled in the meshes of this improvised sieve, which in no case will interfere with the thread of the screw, and cannot, from its textile structure, clog or plug the caliber of the needle.

As a crucial test, the microscope failed to discover any shreds, fibers, granules or what not, after trying parts of several drops thus subjected to the filter.

It has occurred to me, as a sort of postulate, that wads of compressed absorbent cotton will be found far better than the inconvenient tablets lately used for the hypodermic syringe. The cotton may be made to absorb the solution, dried, and then compressed and packed in tubes like the tablets. A few minims of water, without special care in selection, may be drawn into the syringe. the upper cap unscrewed as above, the antiseptic absorbent cotton medicated wad filter introduced, the cap replaced and the gun fired. These tablets harden and become almost insoluble, even in hot water; with the wads this would be obviated, of course. Very respectfully,

E. C. HUSE, M.D.

ARTICLE XI.

ELGIN, ILL., AUGUST 4, 1882.

EDITORS CHICAGO MEDICAL JOURNAL AND EXAMINER:

Is yellow fever contagious? My experience, extending through four epidemics of yellow fever, leads me to the belief that it is a non-contagious disease. In 1853 I had the sickness, and practiced through that epidemic in Lavaca, Texas. Out of seven physicians there, five died with the disease. Many ran away from the place, as is the case in all epidemics of like character. I attended a number of the refugees who only went out six miles, and camped on a bayou where there was a little settlement. No one took the disease in the settlement, notwithstanding they helped nurse the sick. The next season, 1854, the fever again appeared. Again in 1863 and 1867, the two towns of Lavaca and Indianola suffered greatly with the sickness. During every one of these epidemics many fled. I never knew of a case of fever resulting from exposure to it, nor from infected clothing *fomites*. I think the only method of finding out if the sickness be contagious is for some one to take it from some such exposure, but

with all my experience, I never knew such a case. I have witnessed sporadic cases of it in New Orleans and in other places up to 1878; treated it on shipboard; held post-mortem examinations, and had friends and others present. I have had bedclothing washed and preserved on which the sick and dying had lain, the bedding besmeared with black vomit; never a case occurring from any such exposure within my knowledge. I do not think there are any well authenticated cases of the kind.

I do not believe that in an infected place, where the disease is prevailing as an epidemic, it can be proven that one person takes it from another. I have always observed that in the beginning of this sickness in a place, as an epidemic, the sickness appears suddenly and simultaneously in different and remote spots, showing the disease to have an atmospheric origin. My experience also teaches me that its cause is a domestic one, not depending on any exotic principle. I have had the singular fortune to meet with and treat the first cases in no less than three epidemics, and under such circumstances as to preclude the possibility of any foreign origin. H. ROSENCRANS, M.D.

NATIONAL CONFERENCE OF CHARITIES AND CORRECTIONS.

The ninth annual session of the above organization was held in Madison, Wisconsin, commencing August 7, 1882, and continued five days. The attendance was large, and a wide range of topics relating to charitable and penal institutions were discussed. We are glad to notice that some, at least, out of the many who are devoting attention to these important matters, are beginning to expose the folly of investing so many millions of dollars in imposing public edifices for the protection or correction of classes who would be far better served, and the interests of the people also better protected, by less magnificence in building, and more attention to the moral and physical condition of those placed under public charge. D.

Editorial.

COOK COUNTY HOSPITAL.

This institution has just undergone one of those periodical revolutions in its affairs that all institutions under municipal, or more properly, political control, are subject to. For some time differences have been accumulating between the regular medical staff and the County Commissioners, as the governing body. At the meeting of the Board of Commissioners, on the 3d inst., the whole medical and surgical staff was declared vacant, and a new staff was appointed, without the slightest regard for the interests of the three or four medical colleges that have been built up immediately around the hospital, and depending upon it for the important department of clinical instruction. We are assured that the present revolution will not stop with these new appointments, but will soon culminate in putting the hospital under the charge of one medical man as chief, or superintendent, with a salary, and an *advisory board*. This would add another salaried office, with possible *perquisites*, to the number in the county to be scrambled for at every election, and, generally, to be occupied by the doctor who could bring the greatest political influence to the support of the dominant political party, whether he had any medical or surgical reputation or not. Having no personal interest in the present revolution, and no reliable knowledge concerning the causes that led to it, we are not prepared either to defend or censure any one of the parties. But we are prepared to say that a large proportion of the physicians and surgeons so summarily dismissed were as eminent, skillful, and faithful in the discharge of their duties as can be found in the profession anywhere; and that the system of having our public medical charities attended

largely by professional men who are willing to *give* their services to the sick for the privilege of giving clinical instruction to those acquiring medical knowledge, is the least liable to abuse or neglect, while the system of *superintendency* under one chief medical officer, with a salary, and directly dependent for his position on political influence and party success, is the most liable to fraud, corruption, and incompetency of any that has ever been tried. And yet we shall not be surprised if the present Board of County Commissioners put it in operation within the next thirty days.

Aneurisma Aortæ, Combined with Stenosis of the Trachea and Paralysis of the Recurrent Nerve.

The patient, forty years of age, is a stout man; has had no syphilis, and took sick about seven months ago. There appeared a severe pain under the sternum, the voice became hoarse, and a continued cough troubled him; the breathing was difficult; no pains in the larynx, and no fever. When entering the hospital, the patient was anæmic, and a cyanotic discoloration of the cheeks and mucous membrane was apparent. Dyspnœa in inspiration; temperature subnormal. The peripheral arteries are atheromatous; the larynx projects widely; pulse of the carotids slow; the jugular veins dilated; pressure on the larynx causes no pain. The voice is hoarse; nearly aphonic; the deglutition is not difficult. Thorax long and flat; supra-clavicular grooves deepened; suspiration difficult and hard; respiration twenty per minute. In the anterior part of the thorax is visible a large prominence. A portion between the manubrium, clavicula, right mamillar line and the cartilage of the second rib is somewhat elevated; percussion dull. There is also pulsation coincident with that of the heart. Diaphragm quite low; over the heart dull sounds, also in the fossa pigularis. The patient died from asphyxia. The autopsy showed the aorta enlarged, and there was a sac three cmm. behind the heart, compressing the left bronchus. The recurrent nerve had grown into the aneurism, and the bronchial glands were hardly visible. The trachea was compressed shortly above the bifurcation.—*Med. Chir. Centr. Bl.*

BOOKS AND PAMPHLETS RECEIVED.

BOOKS.

The Medical Digest, or Busy Practitioner's Vade Mecum. Neal. Leger, Smith & Co., London.

Insanity and Imbecility. A Rational Materialistic Definition of, with the Medical Jurisprudence of Legal Criminality. Howard. Montreal: Dawson Bros.

Diseases of the Rectum and Anus. Kelsey. Wm. Wood & Co., Med. Lib. 1882. W. T. Keener.

Homœopathy; What is It? Palmer. Davis, Detroit.

Percussion Outlines. Cutler and Garland. Boston: Houghton, Mifflin & Co.

Manual of Diseases of the Skin. Bulkley. New York: Putnam's Sons. W. T. Keener.

Materia Medica and Therapeutics. Vol. II. Inorganic Substances. Phillips and Johnson. New York: Wm. Wood & Co., Med. Lib., May, 1882. W. T. Keener.

Transactions American Gynæcological Society, 1881. Vol. VI. Philadelphia: Lea's Son & Co. W. T. Keener.

Tenth Michigan Registration Report, Lansing, Mich.

Practical Medical Anatomy. Ranney. Wm. Wood & Co.

The Experimental Method in Medical Science. Dalton. New York: Putnam's Sons.

Labor Among Primitive Peoples. Engleman. St. Louis: Chambers & Co. W. T. Keener.

Mental Pathology and Therapeutics. Grusinger. Translated by Robertson and Rutherford, Edinburgh. New York: Wm. Wood & Co. W. T. Keener.

Contributions to Practical Gynæcology. Donaldson. W. T. Keener.

Clinical Lectures on Diseases of the Urinary Organs. Thompson. W. T. Keener.

PAMPHLETS.

Uterine Anteversions and Anteflexions. Wing.

Trance, Muscle Reading and Allied Nervous Phenomena. Beard.

A Contribution to the Subject of Nerve-Stretching. Morton.

Antepartum Hour-glass Contraction of the Uterus. Smith.

Health in the Common Schools. Second Annual Report New York Board of Health.

Treatment of Uterine Fibroids by Iodine. Radcliffe.

Expert Testimony in the Whitaker Case. Piper.

An Ephemeris of Materia Medica, Pharmacy, etc. Squibb.

The Practice of Gynæcology in Ancient Times. Jenks. W. T. Keener.

A Further Contribution to the Treatment of Pulmonary Cavities. Pepper.

Tonsillotomy and its Complication by Hæmorrhage. Powell.

Two Cases of Hemiachromatopsia. Hayes.

The Condition of the Eyes in Two Cases of Fatal Anæmia. Bettman.

The Columbus Medical College Embroglio. Baldwin.

The Presence of the Micrococcus in the Blood of Malignant Measles. Keating. Trow & Co., N. Y.

Proceedings of the Connecticut State Medical Society, 1882. Blakiston, Son & Co.

LARRABEE says: "Quackery consists in this, that while with the regular scientific physician all things are held in common, all truths are shared, quacks, by conspicuous words and advertisements, lead the people to believe that they possess ideas not known to the regular profession, and this alone is their hold upon the people whereby they gain a livelihood. When by chance the community looks in on the regular profession, they are surprised to find that the quack has nothing new, nothing that is not borrowed from legitimate medicine." In short, if all would be content to be known simply as doctor, there would be an end to schism. On no other ground can the honest regular practitioner meet in council the disciples of the healing art. This platform is as broad as accumulated knowledge and experience can make it. They alone are responsible for results who refuse to adopt and live by it.—*Detroit Lancet.*

Original Translations.

EXTIRPATION OF THE LARYNX.

Czerny proved the possibility of extirpation of the larynx, on animals, and then Billroth executed the operation on living persons. Since that time extirpation of the larynx has been practiced about forty times, with eighteen successful results. The most severe accident in this operation, the entrance of blood into the bronchial tubes, has been avoided by, 1, lowering the head of the patient; 2, performing tracheotomy a certain time before laryngotomy. The lowering of the head is objectionable, because the parts to be operated upon are not in full view; but the obturation of the the trachea after tracheotomy is the best means to avoid an escape of blood into the bronchial tubes. Trendelenburg's canula with air-sac is doubtless the best apparatus invented for this purpose. The incision is made in the median line, from a little above the hyoid bone down to the first cartilage of the trachea. The skin and cellular tissue are divided, and the sterno-hyoids are entered without difficulty on the thyroid cartilage; then the thyroid bursa is opened. The flow of blood is insignificant, and only the crico-thyroid artery has to be ligated. Then the lateral parts of the larynx are dissectod with a blunt instrument, Bottini using the thermo-cautery. The thyro-hyoid and sterno-hyoid muscles are divided on their point of insertion on the cartilage. The deeper parts are separated, first the lateral lobe of the thyroid body (corpus), and the superior thyroid artery ligated. The constrictors of the pharynx are dissected from their points of insertion, and the larynx thus liberated from the lateral and posterior parts. The larynx is then seized with a tenaculum inserted into the thyroid cartilage, the organ thrown forward and

the hyo-thyroid ligament dissected. The upper laryngeal nerve and artery are divided, the latter ligated. The front part of the larynx is then isolated by cutting the inferior arteries and nerves, and at last the larynx is separated from the trachea by dissection. Some operators prefer to separate the larynx from the trachea immediately after the larynx has been isolated from the lateral parts, and to dissect from below upward, dissecting the thyro-hyoid ligament last. In cases where the cancerous masses have entered upon the pharynx, œsophagus, trachea and epiglottis, the surgeon requires great discretion. To prevent the rapid retraction of the parts surrounding the trachea, Maas and Wegner divided the cricoid muscle with Liston's pincette, leaving a space for the insertion of the artificial larynx. The operation being finished, a few sutures are applied, but primary reunion is not sought for. A large soft canula, the anterior part of which is surrounded by antiseptic gauze, is introduced from the wound into the stomach, the superior part of the trachea is closed by Trendelenburg's apparatus, which is provided with an air-sac. The wound is treated antiseptically, injections being made into and through the mouth, especially in cases where the epiglottis or tongue had been elevated in the course of the operation. Nourishment (wine, beef-tea, milk) is given through the anterior aperture of the canula. Deglutition by the mouth is only possible after the wound is covered with healthy granulations, which may be perfected after a short time. The tongue acts then, even in cases where the epiglottis had to be elevated, as an obstructor, and it prevents the food falling into the trachea. Some operations have been followed by surprising success, and the wound healed without fever or any other accident. The principal causes of death have been shock and pneumonia. The main points in the operation are, 1, preliminary tracheotomy; 2, placing of the tampon; 3, insertion of the œsophageal canula; 4, antiseptic treatment. After the wound has been healed, it is necessary to introduce an artificial larynx, Gussenbauer's newly invented instrument being the most perfect. The latter is composed of a tracheal canula, a laryngeal canula containing the vocal apparatus, and a valve forcing the air through the laryngeal

canula in expiration. The amplitude of vibrations of the metallic lamella is increased by the passage of the sound into the nasal fossæ.—*Archives Général de Médecine.*

CANCER OF THE ILEUM.

Primitive cancer of the intestines is much less frequent than cancer of the stomach; the most frequently affected intestines are the rectum, the cœcum and the ileum. Many authors consider the cancer of the small intestines, and especially that of the duodenum, as a secondary form. Dr. De Castel made a good many observations on this subject, and he points to the fact that most cancers develop on the termination of the different canals in the human economy. The portion of the ileum next to the ileo-cæcal valve is often the seat of epithelioma; this part is also essentially the seat of cancer of the ileum, and there are cases where there exists a circumscribed cancer of the valve. The most usual alteration is found above the valve, and then the glands are transformed to white hard masses, with some colloid corpuscles. The induration of the glands impedes the action of this organ, and hence the continued constipation. There are further voluminous ramifications of the mucous membrane which will diminish the cavity of the ileum, and there will be at last a complete obstruction of the canal, so that it is often impossible to inject any water through the canal in autopsy. The cancer will be confined either to the termination of the ileum, or it will attack the neighboring parts, especially the cœcum, which is transformed to a rigid canal devoid of any elasticity. In the latter cases it is difficult to distinguish the origin of the malignant growth, whether it was first in the ileum or in the cœcum, but Dr. De Castel thinks that in the most cases which he dissected the growth started from the ileo-cœcal valve. By the narrowing of the ileum great masses of fecal matter are accumulated, and they are rejected by the stomach. The covering peritoneum is also mostly degenerated, and the pericœcal cellular tissue forms adhesions with the canal and the fossa. The diagnosis of the incipient cancer is very difficult, the symptoms being of a dyspeptic character at

first, with general malaise, but later continued constipation and vomiting of fecal matter will show the character of the disease, and the presence of a tumor in the iliac region will make the diagnosis correct. The pain is but a secondary symptom, and it is often entirely wanting. The seat of the pain is either in the stomach (gastralgia), in the epigastrium, or around the navel. There are sometimes colic-like pains, which result from violent contractions of the intestine to overcome the narrowed canal. The vomiting is often observed in cases where the cœcum is not much involved. When the vomiting is fecal, it is tinged sometimes with blood resulting from hæmorrhage. The invasion of the peritoneum modifies the character of the disease, and there is either a tumor formed by the intestines adherent one to another, or there is a swelling of the abdomen which prevents the auscultation of the original tumor; in general the peritoneum is at last involved with the cancerous masses. If the glands are affected, the secondary cancer will attain a much larger size than that of the cœcum. The cancerous cachexia is often retarded. The course of the disease is short; from two months to one year. The treatment is confined to physics. Surgical treatment has never been tried in these cases, but it might become necessary in those cases which resemble strangulated hernia.—*Archives Général de Médecine.*

THAT dogs appreciate medical treatment is a fact that has been often attested. A story has lately been published illustrating this. One afternoon a little black-and-tan dog was found moaning piteously at the entrance of a hospital in East Concord street, Boston. The animal's apparent suffering attracted the attention of Dr. C. E. Hastings, one of the faculty, who made an examination, which revealed a bad compound fracture of the leg. The doctor set the bone, and gave the little sufferer such other treatment as the case required.—*Journal of Comparative Medicine and Surgery.*

Abstracts.

INHALATION OF MEDICATED VAPORS IN DISEASES OF THE RESPIRATORY ORGANS.—Guillemin (*Archives Méd. Belges—Lond. Record*) summarizes his views as follows:

1. The affections of the mucous membrane of the respiratory passages may in certain cases be advantageously treated by inhalations of medicated vapors.

2. In the first stage of acute inflammation of this mucous membrane, pain, cough, and painful sensations, which are the consequence of irritation and dryness, are rapidly calmed by inhalations of warm, moist, and aromatic vapors.

3. The calming action is still more decided if to the liquid, which serves for inhalation, there be added a small quantity of certain volatile calmative substances such as ether, distilled cherry-laurel water, or conium.

4. Frequently renewed inhalations of essence of turpentine, when they are administered at the commencement of the first period of inflammation, may arrest its progress.

5. The vapor of iodine exercises an irritant action on the mucous membrane of the air-passages. It induces efforts of coughing, and augments the secretion of the mucus of the air-passages. This irritating action may be utilized: (*a.*) To diminish the swelling of the mucous membrane by causing the inflammation to pass from the first to the second stage; this indication is present especially in cases where the inflammation occupies the small bronchi; the swelling of the mucous membrane is sufficient to give rise to fear of respiratory insufficiency. (*b.*) To diminish the viscosity of the products of morbid secretion by their admixture with the mucus, of which the vapors increase the formation.

(*c.*) To induce efforts to cough, and to disembarrass the air-passages from the products which are there accumulated.

6. It is not only by its irritating properties that the vapor of iodine modifies the mucous membrane of the air-passages. Iodine in reality possesses the property of stopping purulent secretion, and, on the other hand, it arrests and prevents putrescence. Thus, when the mucous membrane of the air-passages yields a purulent secretion, resulting either from an acute inflammation in the third stage, or from a chronic inflammation, the inhalations of iodine will determine by degrees the quantity of pus, and finish in certain cases by entirely changing the nature of the secretion, which becomes completely mucous.

7. Although the essence of turpentine, in the fluid condition, is a sufficiently powerful irritant for the tissues with which it is placed in contact, inhalation of this essence is easily supported by the mucous membrane of the air-passages. It only brings on very moderate irritation, and very rarely provokes fits of coughing.

8. When the mucous membrane is affected, and yields a product of secretion, these vapors have the effect of diminishing the quantity and augmenting the consistence of this.

9. If the product of secretion be purulent, the inhalation of essence of turpentine, continued during a sufficiently long time, progressively diminishing the quantity of pus, may, in certain cases, completely stop the secretion. The inhalations are indicated in all affections of the larynx, of the trachea, and of the bronchi, when accompanied by a very copious muco-purulent secretion without viscosities. On the other hand, the use of them must be avoided whenever expectoration is difficult, in consequence of the too great viscosity of the products of secretion.

10. In cases when these products are at the same time very copious and very viscous, it is possible, by alternate inhalations of vapors of iodine and vapors of turpentine, to rapidly diminish the quantity of secretion without increasing its viscosity. The inhalation of iodine should always be used in the first instance.

11. Inhalation of essence of turpentine is indicated in hæmoptysis, and is very successful in cases of hæmoptysis of average intensity.—*Detroit Lancet.*

INSANITY AND DIVORCE.—Some time ago a commission was appointed in Paris to investigate the question of Divorce, and determine what circumstances should in future be accepted as valid reasons for the dissolution of the marriage tie. MM. Charcot, Blanche and Legrand du Saulle have recently appeared before this commission, and testified that, with some reservations, insanity should not hold in law as a plea for divorce. According to the *British Medical Journal*, a writer in the *Gazette Hebdomadaire* warmly endorses the opinion of these eminent men, and in support of it advances the following reasons:

1st. No *disease* occurring after marriage, not even impotence, justifies divorce; insanity being due to a diseased condition of the nervous system, can therefore no more justify divorce than any other form of disease. The insane suffer in their moral and intellectual, as well as their physical health, and consequently deserve even greater consideration and care from their friends than those afflicted with ordinary ailments. In many cases, it is true, strict precautions must be taken to guard against the effects of mental loss of balance, but these do not necessitate either divorce or separation.

2d. *Chronic Insanity*, although often incurable, is not necessarily so. It would be both cruel and unjust to make it legally possible for a married man to return to his home after an unexpected recovery from chronic insanity to find his wife divorced from him and wedded to some other man. The form of dementia known in France as *Folie Ciaculaire* often yields such surprises. M. Blanche cites one case of this kind which, after sixteen years recovery eventually took place. *General paralysis* is admittedly incurable; yet such long and complete remissions do sometimes occur as to deceive even the most experienced practioners, the disease seems permanently arrested, and the patient leaves the asylum and returns to his family. With regard to these hopeless cases which are manifestly passing from bad to worse, Charcot maintains that the plain duty of the family is to redouble every possible attention, and wait patiently for the inevitable end, rather than seek for relief by divorce. *Epilepsy*, though generaly continuous, and a fruitful cause of insanity, is nevertheless sometimes limited to two or three attacks, then dis-

appears never to return. According to Foville, such epilepsies occur chiefly in the young, and are most frequently connected with the eruption of the wisdom teeth. Epilepsy is sometimes caused by the irritation of intestinal worms; the case of a librarian is cited where epileptic attacks ceased after the expulsion of a tænia, and did not return during the remaining fifteen years of his life. Chronic insanity should not therefore be admitted as a reason for divorce.

3d. It is by no means uncommon to meet with persons sufficently wanting in the moral sense to speculate by marriage on the diseased condition of their fellow creatures. Those affections which are slow in presenting their true character, but are not unfrequently recognizable in their early stages, such as phthisis and insanity, are particularly adapted to this kind of calculation. The prospect of divorce would be yet another encouragement, and so much the more tempting as regards dementia, that it would be more easy to accomplish an act of spoliation in the case of a person of weak intellect after marriage.— *Canada Med. Rec.*, April.

COOL AIR, ETC., IN MEASLES AND SCARLET FEVER.

Many children die or recuperate badly in measles and scarlet fever from want of fresh air. The same obtains in other affections, also, but proportionately perhaps oftener in these two of the major exanthemata.

The people imagine heat indispensable, and they dread draughts. Physicians advise a warm atmosphere, sometimes to favor eruption on the surface, to protect the air passages in measles and the kidneys in scarlet fever, and the result is often bad air for respiration. Equable heat to the body is necessary, but should be maintained by the clothing, or artificially, in the bed, and not by raising too high the temperature of the room. Better have it rather low than too high, provided the body be kept warm.

Hot air is not generally necessary for the bronchial affection in measles. I have seen a case do well in a room that froze water at

night, and have come to think lately that a somewhat cool room is best always in measles and scarlet fever, whether sthenic or asthenic. Not over 60° Fahrenheit in winter is better, and as cool as possible in summer, with very free ventilation.

In scarlet fever especially, cool fresh air is essential to promote active interchange of the normal gases in the lungs, and elimination through them, also, of some of the poison. It relieves restlessness, and is sedative, because grateful, to the patient. It is anti-pyretic somewhat from mere presence in the nares and throat; and nothing is so decided a vaso-motor stimulus as cool, fresh air when supplied for respiration in place of the hot and impure. It gives firmness and efficiency to the whole circulatory apparatus.

Efficient capillary and venous circulation favors secretion and excretion, and relieves internal congestions, in scarlet fever necessary in the glomerular and intertubular capillaries of the kidneys, and the automatic nervous ganglia of the body and brain.

In both these affections the stomach and bowels should have attention at first; patients are usually taken in full habit, the temperature rises, the secretions are checked, and the bowels should be moved at once. Sometimes they have moved sufficiently, but generally not. Solid food should then be withheld till the eruption is over. Little more than small drinks of water should be given in sthenic cases for the first two or three days.

Medicines are rarely necessary in ordinary uncomplicated measles, except to please friends.

In scarlet fever, where the temperature is greater, I give vegetable acids, diluted with water, freely for the first few days, or whenever there is thirst, and as long as they agree with the stomach and bowels. Citric acid is good in the form of lemonade, without sugar. I prescribe for a child four or five years old:

℞ Acidi acetici diluti..... ℥ ss.
Aquæ ad..... ℥ iv.
Misce et fiat Mistura.
Sig. Teaspoonful in water every hour, if awake.

It proves, in a degree, diuretic, diaphoretic, antipyretic, and sedative, and promotes elimination from the alimentary mucous surface. It increases destructive metamorphosis, especially adi-

pose, so desirable in the fleshy. This, with its stimulus to elimination, tends to lower heat of body; and renders it, to a certain extent, curative, as well as an agreeable drink. It is a sedative largely from allaying the thirst.

Mineral acids do none of those things so well, and are not so appropriate during the stage of eruption.

Digitalis is beneficial in venous distension and weak cardiac contraction.

Quinine is essential in malarial complication, and generally useful in high temperature and extreme septicæmia, but need not be resorted to at first, and rarely at all in scarlet fever.

The cold bath is not generally without some risk from shock or imperfect reaction; but extreme temperature may be lowered somewhat by cold to the head and palms of the hands, and occasional quick sponging with cold water, followed by friction.

We close with the end of the eruptive stage; for the acute tubal nephritis, median otitis and lymphadenitis, if they happen to follow, form new considerations, and are the principal results, besides death, we try to prevent.—*Thos. N. Reynolds, M. D., in Trans. Mich. Med. Soc. and So. Prac.*

QUININE IN CHOLERA INFANTUM.

Called to see a patient *at night*, along with the means already advised, you will now make an important addition to your treatment. We usually, unless the case is very urgent, postpone the administration of the grand remedy, quinine, until the late hours of night. Then the violent excitement and commotion of the exacerbations have passed. The stomach is then not so irritable. Quinine, a *sedative and narcotic*, is assisted in its action by the physiological tendency of the nervous system to repose in the night season, and you have ample time to exhibit enough of it in order to prevent the threatened exacerbations of the next day. I am sure that the remedy is better borne, and produces its salutary effects in the most perfect manner, when exhibited in the late hours of night. At midnight, then, we can commence its use. To an infant of six months of age and under, we give a

grain of sulphate of quinine with a few grains of white sugar, diffused in a teaspoonful of cold water. To a child of twelve months, we give two grains of quinine, and to one of eighteen months, three grains. If the dose is immediately rejected, we repeat it over and over again every half hour. After a few repetitions enough will be absorbed by the mucous membrane of the mouth and stomach, or by the former alone, if it is not even swallowed, to bring the little patient fully under its influence. If the first dose is, however, entirely retained, we allow the patient to rest for three or four hours. We then repeat the dose, and continue to repeat it until the thermometer in the axilla and the finger on the pulse indicate that rapid sedation is ensuing. In the large majority of cases these effects will follow from the administration of the sulphate. The pulse will become slower and less active and bounding; the head will become cooler; and the extremities, if previously below the normal temperature, will become warmer. Not only this, but the vomiting will become less frequent, or will often entirely cease. After the first dose of quinine has been absorbed, the bowels will become more quiet, and the renal secretion more copious. The little sufferer will become tranquil, and fall asleep, sometimes for hours without awaking; but it can be easily aroused if necessary. The narcotism produced by quinine, in this respect, is unlike the stupor produced by opium; and, besides this, instead of having a tendency to produce congestion of the brain, like opium, it has, beyond all other remedies, the power of removing an excess of blood from the cerebral vessels. In five or six hours the administration of quinine has begun, in the large proportion of cases, seen early in their course, the fever will have disappeared. When this occurs, cease medication for the day. On the next afternoon or night a slighter exacerbation will often make its appearance, and this may recur for two or three nighes thereafter. In this same case, repeat the quinine in similar or diminished doses, giving it more freely in direct proportion to the violence of the fever. At the same time we continue the calomel, or employ blue mass, until the presence of pure, healthy bile in the dejections is perfectly evident. Now that the fever has vanished, you may associate opium in minute doses with the mercurials. If blue mass is given, have it tritur-

ated in a teaspoonful of simple syrup, and add the laudanum to it.—*Otis F. Manson, M. D., in Trans. Virginia Med. Society and Southern Practitioner.*

IN studying the Geographical and Climatic relations of Pneumonia Dr. E. Sanders has summarized the following conclusions. His studies were based upon statistics obtained from many towns and cities in the United States and Europe:

"1st. The relations of pneumonia to altitude are definite and marked; with increase in elevation above the level of the sea, there is a steady diminution in the death-rate of pneumonia. To this rule some exceptions exist, but in the large majority of instances the relation holds good.

2d. The mean annual rainfall of a place bears no positive relation to pneumonia; in some instances a large mortality from the disease coincides with a large precipitation of rain, in others with a small precipitation, while in many others the contrary conditions are found to prevail.

3d. The higher the death-rate of a place from all causes, the greater the mortality from pneumonia. This rule is almost, if not actually, absolute.

4th. The larger the actual population of a locality, the greater its relative death-rate from pneumonia; the explanation for this being probably found in the following: Density of population bears an undoubted relation to the pneumonia rate, increase in the former being followed by, or going hand in hand with, increase in the latter.

5th. There is a direct, positive and unequivocal relation between the mean annual temperature of a place and its death-rate from pneumonia; the rule being that a high mortality from the disease coincides with a high mean temperature. Exceptions exist, but being unusual and rather rare, their existence can hardly be considered to invalidate this rule.

6th. Proximity to large bodies of water, such as lakes, inland seas, or the ocean, exerts no appreciable influence on the pneumonia rate.

7th. For North America, pneumonia increases in frequency as we pass from east to west; for Europe as we advance from west to east, the rate of increase being nearly twice as great in the case of the latter as in that of the former.

8th. Pneumonia, all other things being equal, increases in frequency the further we advance from the polar regions towards the tropics; this, however, only up to a certain parallel, beyond which it seems to become less and less commonly met with, until at or near the equator, when it apparently disappears. As far as the latter part of this statement is concerned, such would seem to be the truth, judging by what few facts are at hand. Statistics for the equatorial regions are rare and, even then, unreliable; hence I have purposely omited to present them. So few, vague and indefinite are they as to be almost valueless, allowing only of problematic deductions."—*American Journal of Medical Sciences*, July, 1882.

APHORISMS IN OPHTHALMOLOGY.—At the annual meeting of the Medico-Chirurgical Society of Maryland, Dr. J. J. Chisolm treated of eserine, which has taken the place of all other remedies in corneal affections; pilocarpin, which had produced the best results in the author's hands, internally used, of all the articles in the pharmacopeia in acute inflammations of the eyeball; salicylate of sodium, of the greatest value in iritic and scleral inflammations, whether specific or rheumatic; homatropin, to be preferred to atropia and duboisia on account of its transient mydriatic effect.

He also laid down the following aphorisms for general practitioners practicing ophthalmology:

1. Do not blister. 2. Do not use nitrate of silver. 3. Do not use acetate of lead. 4. Treat affections of the mucous surface by weak astringents—borax, sulph. zinc, tannin—and cleanliness. 5. Use weak solutions of eserine for corneal affections. 6. Atropia solutions are essential to break up recent iritic adhesions. 7. When in doubt, consult early with a specialist.—*The American Practitioner.*

Selections.

EXPLANATION.

In the August number of the JOURNAL AND EXAMINER we published an interesting selected article on "Micrococci in Malignant Diseases," by Dr. JOHN M. KEATING, which was forwarded to us in proof-sheets, without any information in regard to the journal office from which the proofs came. We have since learned that they belonged to the *Medical Times*, of Philadelphia. The following articles, by J. T. ESKRIDGE, M.D., and WILLIAM BARTON HOPKINS, M.D., have been received in the same manner, and evidently from the same office. We consequently credit them to the *Medical Times*, of Philadelphia.—ED.

REPORT OF THREE CASES OF ABSCESS OF THE BRAIN. By J. T. ESKRIDGE, M.D., Physician to the Howard and St. Mary's Hospitals. Read May 3, 1882.

Abscess of the brain is of sufficiently frequent occurrence to make the subject of interest to the general practitioner. The cases reported in this paper are all the more interesting because each, due to a different cause, was associated with dissimilar diseases.

The first case was associated with cancer in several of the other organs of the body; the second, with chronic meningitis; the third, with apparent facial erysipelas and pneumonia, followed by acute meningitis.

Detailed cases of brain lesions lose half of their interest, and become almost valueless to students of cerebral localization, when

unattended by accurate descriptions of the relations of pathological lesions to ganglia, fissures, and convolutions.

I wish to acknowledge the services of my friend Dr. Charles K. Mills, who took an active part in the post-mortem examination of Case I., and rendered me valuable assistance in accurately locating the lesions in the first two cases.

CASE I. *Two Abscesses of the Brain.*—1. The larger one, involving the centrum ovale of the postero-frontal and parietal lobes, deeper portions of the gray matter of the anterior parietal convolution, and superior parietal lobule; 2. The smaller, the anterior two-thirds of the lenticular nucleus, and the adjoining portions of the external capsule and claustrum.

September 8, 1881, Mrs. D., æt. 54, born in Germany of a family several of whose members had died from cancer, had been a sufferer from headache fourteen years. She had a large frame and carried considerable fat. Excepting the head trouble, she had enjoyed excellent health until two years before, when she noticed a small tumor involving the left mammary gland. This proved to be cancerous, grew gradually and was removed by a surgeon one year after its first appearance. There had been no return of the growth, although some pain had been complained of in the region from which it had been excised.

Her head pain had greatly increased in severity during the last few months.

In the early part of July, 1881, the left arm began to feel weak, and ten or twelve days later, the left leg was similarly affected, but to a less extent. About this time she went to the country for her health. Continuing to grow worse, she returned home during August, three weeks before I first saw her, and was able to walk from the street cars to her house, a few hundred yards distant. She was then treated by a homœopathic physician for a few weeks, when I was called in, and made the following notes:

The left leg was almost completely paralyzed, the muscles feeling soft and flabby. The left arm was entirely paralyzed. The muscles of the left side of the face were slightly paretic. The right pupil was normal in size, left slightly dilated, and responded imperfectly to light. There was no paralysis of the

muscles of the tongue, palate, or pharynx. The tongue was slowly protruded in the median line, but when it was held in this position a few seconds it became tremulous, a vibratory tremor taking place in individual muscular fibers. Muscular power was impaired in the right arm and leg, but co ordination was perfect. She had had no convulsions, and there was no muscular twitching.

With the exception of a slight tendency to drooping of the upper lid of the left eye, the ocular muscles seemed to be acting well and in harmony.

Sensation was unimpaired on both sides of the body.

Special Senses.—Vision was equal in each eye, and she read Snellen No. 8, held at about fourteen inches. The ophthalmoscope revealed nothing beyond a slight haziness of the right retina. Taste, smell, and hearing were nearly normal, being well preserved for a woman of her age. Speech was unaffected.

The tongue was moist and slightly coated, appetite poor, bowels constipated, not having been opened for several days. The urine was high colored, sp. gr. 1025, but free from albumen. The bladder was tolerant and acted voluntarily.

She was restless, did not sleep well, and complained bitterly of pain in her head. The pain was usually dull. Its seats of intensity were at the top of the head and above each temple, being worse on the right side. She was intelligent, her mind was clear, but being under the impression that her cancer would return, she worried, had become emotional and imaginative.

Temperature (left axillary) 99°; pulse 76, full, soft, and regular; respirations 24 per minute.

September 10, two days later, during my absence from the city, she was seen for me by Dr. Mills, who reported her to be about in the same condition.

September 12. She was not so intelligent, worried more, and refused to eat. The feet were extended and inverted, the balls of the great toes lying in contact with each other. The internal and posterior muscles of the legs were so firmly contracted that it required considerable force on the part of the attendant to evert and flex the feet, and the effort gave her decided pain. The muscles of the left side of the face were almost completely

paralyzed. Swallowing solid or semi-solid substances was so difficult that she refused to eat.

Temperature, right axilla 96°; left axilla 99.4°; right elbow 95°; left elbow 96.7°. Pulse, 86; respirations 26 per minute. Respiration was largely of the abdominal type. After taking citrate of magnesium, her bowels were opened once yesterday, being the first time in about a week.

September 13. At 11 a.m., the temperature of the room being 80°, after ascertaining her body heat, as indicated in each axilla, I made observations on her cerebral temperature, applying the thermometer to most of the stations used by Broca, Gray, and later by Mills. On the present occasion, the surface temperature of the head was taken at eight different stations, on a subsequent one, at two, and still later at eleven. Hick's surface thermometer was employed and allowed to remain in place ten minutes. On each occasion the temperature of the room was ascertained, and that of each axilla noted. The observations were made by myself between the hours of 11 a.m. and 2 p.m. The selected stations were as follows: 1. A middle frontal station in the center of the forehead. 2. A right anterior frontal station, over the right eye, an inch and a half above the brow, and the same distance from the median line of the forehead. 3. A left anterior frontal station, similarly located on the left side. 4. A right posterior frontal station, near the external angular process of the frontal bone. 5. A left posterior frontal station, corresponding in position on the left side to that on the right. 6. A right parietal station, just above the right ear. 7. A left parietal station, just above the left ear. 8. A right Rolandic station, situated on or near a line drawn over the top of the head from the right to the left auditory meatus, and from two to three inches above the top of the right ear. 9. A left Rolandic station situated similarly to that on the right. 10. A right occipital station, one and a half inches to the right of the center of the occipital region. 11. A left occipital station, one and a half inches to the left of the center of the occipital region.

I shall now give the temperature records in connection with the history of the case, and further details under the head of remarks.

Temperature in right axilla, 97.9°; in left axilla, 98.4°. Pulse 104, weak and unsteady; respirations, 24 per minute.

Surface Temperature of the Head.

Right Side.		Left Side.	
Anterior frontal station,	97.3°	Anterior frontal station,	97.7°
Posterior " "	97.8°	Posterior " "	98.1°
Parietal " "	97.1°	Parietal "	97.9°
Rolandic " "	96.3°	Rolandic "	96.8°

She was unable to void her urine for the first time to-day. Thirty-two ounces were drawn off by the catheter. From this time to the date of her death, just two months later, the catheter was daily required to relieve the bladder. She had not eaten anything for two days Headache was excruciating. One-half of a grain of morphia was required each night to produce sleep, bromide of potassium making her wild and delirious. During the latter part of the day she frequently talked incoherently.

September 15. The temperature of the left Rolandic station was 5.5° higher than that of the right. The intermitting character of the respiration formed a very interesting feature of the case at this time. There was no gradual rise and fall of the respiratory movements as seen in the typical Cheyne-Stokes' respiration. There were twenty-eight shallow respirations per minute. After four or five short and rapid respirations there was an interval of rest of eight or ten seconds, then after about the same number of respirations, came another interval of rest.

During the next week, the pain in the head became more intense, and localized in the top of the head and right temple. The bowels failed to respond to various purgatives and enemata.

September 22. The muscles of the left side of the face showed but little loss of power. The pupils were of equal size. The left leg, as well as the left arm, was now entirely paralzed. The muscular strength on the right side did not fail faster than is usual in one whose general vitality is being lowered.

The conjunctiva of the right eye was congested and watery, the sight being but little impaired.

Temperature, right axilla, 97.6°; left axilla, 98.2; pulse 68; respirations 12 per minute. Respiration was still of the abdominal type. The movements of the abdomen preceded those of

chest, and formed with them a see-saw like, or to-and-fro motion, the chest apparently not expanding until the end of inspiration and beginning of expiration.

September 23. Temperature of room, 82°; of right axilla, 98.9°; left axilla, 98.2°; pulse, 72; respirations 9 per minute.

Surface Temperature of the Head.

Right Side.		Left Side.	
Anterior central station, 96.3°.			
Anterior frontal station,	97.9°	Anterior frontal station,	96.2°
Posterior " "	95.0°	Posterior " "	97.6°
Parietal "	97.6°	Parietal "	98.1°
Rolandic "	97.0°	Rolandic "	96.8°
Occipital "	96.9°	Occipital "	98.2°

The pulse, although only 72 per minute, was very weak, but regular in time and volume. The intermitting character of the respiration was more marked on this than on the preceding day. Three or four respiratory movements were followed by an interval of rest, lasting from twelve to fifteen seconds. The number of respirations did not exceed four in succession, nor were they, at any time, less than three. The interval, or rest, was not longer than eighteen seconds, nor was it less than twelve. The respirations, which were largely abdominal, had to be counted for two minutes to obtain the average number per minute. If the movements of respiration were looked for at the beginning of an interval, none were seen during the first quarter or third of the minute, and only three or four during the second quarter or third; whereas, during the latter part of the minute, there might be eight, six, or only three respirations. Thus:

Inter.	Respirations.	Int.	Res.	Int.	Res.	Int.	Res.	Int.	Res.	Respirations.
	4		4		4		4		4	— 20
15s.	9s.	15s.	9s.	15s.	9s.	15s.	9s.	15s.	9s.	— 120 sec.

It will be seen by observing the above tabular view, that, if the respirations had been counted during one minute only, eight might represent the breathing frequency per minute; and if those paroxysms of respiration, if I may so term them, had been limited to three respiratory movements each, as they sometimes were, six, instead of ten, of the tabulated form, could have been set down as the number of respirations. This character of breathing, sometimes slightly increasing in frequency, con-

tinued until a few days before her death, when it changed to the so-called Cheyne-Stokes' respiration.

Sighing rarely occurred. The pupils were normal. The bowels had not been opened since the 11th instant, notwithstanding various purgatives and enemata had been given. Croton oil had been given by the mouth until it had produced griping pains, and an emesis of glary mucus, yet it seemed to have no effect on the bowels. The patient lived from the 11th of September to the 13th of November without having an evacuation from the bowels. During this period of two months and two days, or about nine weeks, she neither suffered from nausea, vomiting nor distension of the bowels from gas or feces. Her diet for nearly two months just preceding her death was almost exclusively of a liquid nature, she rarely taking any semi-solid food.

September 28. During the last few days the face had been turned to the right, and the head drawn toward the right shoulder. At this time she complained of great pain and soreness in the right and posterior portions of the neck. The parts were hard, swollen, and painful to the touch. An attempt, on my part, to straighten the neck greatly augmented her suffering. Pain was also complained of in the right eye and ear. The former was inflamed, and almost useless as a visual organ, and from the latter there was a constant discharge of yellow pus. The ocular inflammation involved more especially the conjunctiva and cornea. An ophthalmoscopic examination of the right eye was unsatisfactory, on account of the hazy condition of the cornea, and the uncontrollable movements of the eyes. The watch was not heard by the right ear, except on firm pressure.

October 3. She was blind in the right eye and deaf in the right ear. The discharges from the eye and ear continued.

October 13. She remained quiet during the day, but required two grains of morphia to induce sleep at night. The hearing in the left ear varied; at times she heard tolerably well with this ear, and at others she was almost deaf. No improvement in the right eye and ear. A semi-choked disk appearance was noticed in the left eye, and vision was nearly gone. The left eye showed no evidence of external inflammation. No discharge was noticed from the left ear.

November 11, 5 P. M. Temperature, right axilla 95.5°; left axilla 98.2°; pulse 104; respiration, 28 per minute.

The right side of the body felt quite cool. The breathing had changed from an intermitting to an irregular character, and constituted what is known as the Cheyne-Stokes' inspiration, except that there was no lull, during which the hand could not detect feeble movements of the thoracic wall. The respiratory movements gradually became shorter, until they were almost imperceptible, then they gradually lengthened until a full inspiration was taken with considerable effort, followed by a blowing noise. Every paroxysm, or rise and fall of the respiratory acts, included about eighteen respirations. She neither saw nor heard, and was no longer able to speak or swallow. The saliva was wiped from the mouth by the attendant, or she made an awkward and ineffectual effort to do it herself, showing that she was probably not entirely unconscious. Her urine was passed involuntarily. No morphia had been required during the last few days. The neck remained in about the same condition that it was on September 23. The muscles on the left side of the face were paralyzed, the mouth being drawn well over to the right side.

She died, exhausted, November 13, 1881, at 12:30 P. M.

Post-mortem examination was made three hours after death, by Drs. Mills, Bissey, and myself.

Brain.—The venous sinuses and arteries were carefully examined, but were found to present nothing abnormal. No lesion of the membranes was discovered. The pia mater was unusually transparent (almost bloodless). The optic nerves were normal in appearance, and no perceptible lesion was detected in the other cranial nerves. No effusion. Entire surface of brain examined through the transparent pia mater before its removal, and no pathological condition was discoverable. On stripping the pia mater from the right hemisphere, the external surface of the convolutions was still found to be intact. Before completing the process of removal of the pia mater from the right hemisphere, a large quantity of a dirty grayish-white liquid suddenly escaped through a small opening at the bottom of a secondary fissure just in front of the upper extremity of the fissure of Rolando.

The right lateral ventricle was laid open by an incision through the lateral border of the corpus callosum. The surfaces of the intra-ventricular ganglia were healthy in appearance. The floors and roofs of the cornua showed no lesion. A longitudinal incision was made through the middle of the head of the caudate nucleus and the optic thalamus, deep enough to pass through these bodies and the lenticular body, just to the inner margin of the insular and sphenoidal cortical substance (gray matter). This incision exposed a small isolated abscess about one inch in length, three-quarters in depth, and one-third of an inch in width, involving the following parts from before backwards; the anterior two-fifths of the lenticular nucleus, and the adjoining portions of the external capsule and claustrum. The caudate nucleus, optic thalamus, and the entire internal capsule, were not changed in appearance. The posterior three-fifths of the lenticular nucleus, and a very narrow strip of its anterior two-fifths above the abscess, were intact. Vertico-transverse sections through the prefrontal and occipital regions showed no lesions. Further transverse sections revealed a nodulated mass and large abscess of the centrum ovale of the postero-frontal and parietal lobes.

The nodule was about the size of a large hickory nut. It involved the white matter and the under portion of gray matter at a point corresponding externally to the superior parietal lobule or convolution, a little anterior to the middle of the inter-parietal fissure. Its anterior extremity just grazed the middle portion of the gray matter of the ascending parietal convolution. The nodule was apparently firm. The abscess extended on all sides of the irregular body, and the exact limits of the former were determined by transverse sections to be as follows: Its anterior extremity reached a point in the centrum ovale corresponding to a plane, just in front of the caudate and lenticular bodies, externally through the anterior halves of the first, second, and third frontal convolutions. Its posterior extremity reached a point in the centrum ovale of the parietal, near the plane of the parieto-occipital fissure. The abscess in its anterior half involved the white matter only, but close up to the gray substance. Its posterior portion involved the white matter, also the inner part of the gray substance of the adjoining convolutions.

The posterior one-fourth of the abscess involved the gray matter to the greatest extent, and approached near the surface at the most posterior part. It had, therefore, destroyed the centrum ovale directly in relation with, *a*, the posterior parts of the first and second frontal convolutions; *b*, the middle regions of the ascending frontal and ascending parietal convolutions; *c*, the middle and lower portions of the superior parietal convolutions; *d*, the upper portion of the inferior parietal convolution. The gray matter destroyed was chiefly in the anterior parietal convolution and the superior parietal lobule. The entire length of the abscess was between four and five inches.

The left hemisphere showed no pathological lesions.

Thorax.—Heart and large vessels were normal in appearance. The apex of the left lung contained four cancerous nodules, varying in size from that of a lima bean to a horse-chestnut. The apex of the right lung was the seat of a nodule about the size of a hickory-nut. The middle and lower portions of the lungs were anæmic. The pleuræ were normal, except at the apices of the lungs, where slight adhesions were formed over the nodular growths. Slight effusion in the left pleural cavity.

Abdomen.—The uterus, ovaries, and ligaments of the womb were the seat of fourteen cancerous nodules, most of which were not larger than a hickory-nut. The liver, spleen, kidneys, and pancreas were anæmic, but free from cancerous growths. The stomach was empty, pale, and contracted, but no induration of its walls was discovered. The upper and lower bowels contained a slight amount of fecal matter scattered throughout their entire extent. The contents of the bowels were soft. No evidence of intestinal obstruction could be detected. The rectum was empty.

Microscopical Appearances.—The nodule in the brain was composed of blood-vessels, brain substance, extravasated blood, and blood-pigment. No cells of a suspicious character were seen.

Remarks.—The abscesses cannot be attributed to the presence of a cerebral tumor. The history of the removal of a malignant growth from the left breast one year before, naturally suggested to me the probability of a similar one in the brain. No local interference with the venous or arterial circulation of the brain was detected at the autopsy. As causative agents, apparently

nothing beyond a profound lowering of the vital forces and the blood infection attendant upon the presence in the system of several cancerous masses, were found. If in these lies a sufficient cause, I am at a loss to know why abscess of the brain is so infrequently found in connection with cancer of other portions of the body, or why it is not more generally associated with general anæmia.

Remittent respiration is referred to by Hughlings Jackson (Reynold's *System of Medicine*), although he does not give it that name, and Cheyne-Stokes' respiration by nearly every recent author on nervous diseases, but I find no allusion to the peculiar intermittent variety found in this case, in which three or four respiratory movements of equal length and depth were followed by distinct intermissions, varying in length from fifteen to eighteen seconds.

Just before the patient's death, when the respiration approached the Cheyne-Stokes character, there was no period or interval of several seconds duration, during which the respiration intermitted, but the movements were continued regularly, increasing or lessening as the efforts at respiration reached the maximum or minimum.

One or more cases with respirations differing from the Cheyne-Stokes' similarly to this may be found described in a joint paper presented at the Northern Medical Society of Philadelphia, by Drs. Mills and Ott (*Phila. Med. and Surg. Reporter*, July 2, 1881.

The abdominal respiration noted in the clinical history may be imitated by any one in health by first voluntarily expanding the abdomen, then allowing the chest to be inflated subsequently, the expiratory movements taking place in the order of time, in which the inspiratory were effected. It differs from the form of abdominal breathing referred to by Hughlings Jackson in connection with cerebral hæmorrhage. It is a grave omen, and is most commonly found in cases of great prostration, as in typhoid fever and shock, or it is associated with certain brain diseases attended by a similar condition of the vital forces.

The inflammatory changes that occurred in the right eye and ear, with the subsequent loss of vision and hearing in these

organs, cannot be accounted for by any appreciable lesion in the pons, medulla, or at the base of the brain adjacent to the optic nerve. The well-known experiments of Waller, Bernard, and Brown-Séquard, on the effects of stimulation and paralysis of the cervical ganglia of the sympathetic nerve aid us in attributing the trophic changes found in the eye to the local trouble present in the right side of the neck, which preceded the affection of the organs of the special senses. I regret that we failed to examine the indurated tissues of the neck, and to ascertain the condition of the sympathetic nerve and ganglia in this region.

The general and cerebral thermometric records of this case present some points of interest.

General Thermometry.—According to the physiological experiments of Hitzig, Eulenberg and Landois (quoted by Mills, *Phila. Med. Times* for January 18, 1879), the heat-controlling centers are situated in the cerebral cortex of the motor regions, around the fissures of Rolando, especially in the ascending convolutions. Usually, but not constantly, destruction of this area gave rise to increased, and irritation produced lessened temperature in the extremities of the opposite side of the body. In the present instance, the large abscess involved to some extent the supposed thermic area of the right side. Comparative observations of each axillary temperature were made on seven different occasions, and were as follows:

	Right Axilla.	Left Axilla.
Sept. 8.....		99°
" 12.....	96°	99.4°
" 13.....	97.9°	98.4°
" 14.....	97.9°	98.2°
" 19.....	97°	98°
" 22.....	97.6	98.2°
" 23.....	98.9°	98.2°
Nov. 11.....	95.5°	98.2°

The temperature of the right or non-paralyzed side of the body only once exceeded that of the left, when the thermometer registered 7° higher in the right than in the left axilla. The temperature of the left armpit ranged from 5° to 3° higher than that of the right. During the first shock to the system produced by the abscess, and just before death, when paralysis was most com-

plete, the difference between the two sides of the body heat was greatest, being 3.4° at one time, and about 3° at another.

Cerebral Thermometry.—I shall only refer to the extended observations of Broca, Gray, Maragliano and Sepelli, on cerebral thermometry in health and disease. Their conclusions are in harmony with each other, and their utility has been demonstrated by observations made on at least two cases of tumor of the brain, one by Dr. Charles K. Mills (*Phila. Med. Times*, January 18, 1879), and the other by Dr. Landon Carter Gray (Hamilton's work on Nervous Diseases, 2d ed., p. 22), who was the first in this country to investigate the surface temperature of the head in health. Dr. Gray found the average normal temperatures of the stations on the left side of the head to be for the frontal, .65° ; for the parietal, .85° ; for the occipital, .72°, higher than those of the corresponding stations on the right side. He gave as the average normal temperature of the right frontal station, 93.71 ; of the left, 94.36° ; of the right parietal, 93.59° ; of the left, 94.44° ; of the right occipital, 91.94°, of the left, 92.66°. Variations of more than 1.5° he considered suspicious of disease at that point, and of more than 2° strong evidence of a pathological condition.

Comparing the results of the surface temperatures of the head made on the case reported at length in this paper with those reported by Gray and others, we shall find several points of difference. The temperatures were from 2° to 4° higher than those obtained on the heads of healthy subjects, although the axillary temperatures of this case, taken at the same time, were normal or subnormal. The temperatures at the several stations on the left side of the head exceeded those on the right by about .5°, which is nearly in accord with the normal difference. The temperature at the left Rolandic station was .2° lower than that of the right on one occasion only. With this exception, the temperatures on the left side were the highest. On September 23, when paralysis of the left side of the body was complete, the surface heat of the left posterior frontal station was 2°, and at the left parietal 1.5° greater than at the corresponding stations on the right side. Before complete paralysis had taken place in the left leg, there was nearly an equal increase of heat at the

frontal and posterior stations; later, when the leg was powerless, the temperatures of the posterior stations exceeded their normal more than did those of the anterior. In the observations on cerebral thermometry in connection with brain tumors made by Drs. Mills and Gray, the stations nearest the growths, both of which happened to be on the right side, gave the highest average increase of temperature.

The area to which the occluded vessels in embolic hemiplegia are distributed is said to have a subnormal temperature.

I am not aware that the results of any observations of the surface temperature of the head made on persons suffering from abscess of the brain have been reported. No valuable conclusions can be drawn from observations made on a single case; especially is this so when the surface temperatures of the head are not more frequently taken than in the history of the one just reported. In health the head temperatures are from 4° to 6° lower than that of the axilla, being lowest posteriorly. In the present case, with a normal or subnormal axillary temperature, the head temperatures were elevated from 4° to 6° above their normal, the occipital, in one instance, being the highest, equalling the axillary, and exceeding its own in health 6°.

Dr. Allan McLane Hamilton, of New York, has reported the results of his observations on a case of meningitis, in which the occipital temperatures exceeded those of the other regions of the head. (Ibid.)

It is doubtful whether the local temperatures of the head in abscess of the brain will aid us in locating the disease to any particular region, but if the results of the observations already made on cerebral thermometry in brain tumor be sustained by future investigations, the surface thermometer may help us in differentiating abscess from tumor of the brain.

In a case of brain trouble, in which the diagnosis is between tumor and abscess, a limited surface area of one side (especially the right) of the head, with a temperature considerably elevated above the heat of the surrounding parts, would point to tumor; whereas, an elevation of the entire cerebral surface temperature would indicate abscess.

The direction of the destructive lesion in the brain, if we may

judge by the progress of the paralysis, was from before backward, showing that the nodule occupied the region last involved, instead of the first, as would have been the case if it had been caused by an embolus, and had in its turn given rise to the abscess.

CASE II. Abscess of the brain following chronic meningitis; sudden death.

On the notes of Dr. Dennis the history of the following case is based:—

Mr. G. S., æt. 56, German, shoemaker, served in the German army, and, when a young man, led an irregular life. He presented no marks of syphilis, and no history of his having suffered from that disease could be ascertained. He had always been a moderate drinker of beer, but never indulged in the stronger alcoholic liquors.

He was a large, heavily built man, and, with the exception of occasional headaches, had enjoyed good health until the latter part of the year 1880, when the loss of his wife, followed by other domestic unhappiness, seemed sufficient to disarrange an already ill-arranged nervous system. His temper had been irritable for many years, but now he became subject to frequent outbursts of passion, during which he would vent his spleen on any one who chanced to be near him. His memory became very treacherous, often getting confused in his business, and even at times being unable to remember the day of the week. His headache became constant and more severe.

During the spring and early part of the summer of 1881, he had what he called "rheumatic attacks," during which, while attending to his usual duties, he would be seized suddenly by a sharp pain in the course of the left sciatic nerve, followed by immediate paralysis of the left arm and leg, compelling him to sit down to save himself from falling. During the attacks he did not lose consciousness. The paralysis never lasted longer than a few minutes, power of motion returning, and seeming to be as good as before the shock. The frequency of the hemiplegic seizures, two or three attacks often occurring weekly, depended upon causes giving rise to outbursts of passion. Sudden changes of weather were apparently associated with the nervous disturbance.

His symptoms remained unchanged until the latter part of October, when, in a fit of anger, he fell to the floor, frothed at the mouth, and became convulsed. No paralysis followed the convulsion, but the headache steadily increased, compelling him to take to his bed. As on this, so on every succeeding day during his entire illness, he remained in bed only a portion of the day.

The head-pain, now constant, was so severe that it prevented continuous sleep, and from short naps, which he would occasionally get, he would be awakened suddenly by violent exacerbations of pain.

He was attended by homœopathic physicians until November 12th, two weeks before his death, when Dr. Dennis was requested to take charge of the case. His temperature at this time was 99.5°; pulse 70 per minute, full and strong; respirations natural; appetite capricious; tongue coated, stomach intolerant, and bowels obstinately constipated. Urine scanty, high-colored, and free from albumen, was voided voluntarily until a short time before his death, when it was occasionally passed involuntarily. The skin was slightly jaundiced. He complained of occasional chills, and was very sensitive to changes in the atmosphere. Nocturnal delirium soon begun. He was very restless, saw strange things and people in his room, and would occasionally rise during the middle of the night and awake the whole family, telling them that it was time to get up for the day. At times his mind seemed to be a blank, he could not tell the day of the week, and would frequently be unable to distinguish day from night. On other occasions his mind was clear, but during these lucid intervals he could converse intelligently and connectedly for a few minutes only, thought suddenly ceasing to be generated, when a vacant stare would be his only reply to questions which a few minutes before he had answered promptly and correctly. Impressions were persistently and obstinately adhered to, and any attempt at persuasion to the contrary was not calmly received. His headache, principally frontal and right-sided, was now sharp and lancinating, requiring hypodermic injections of morphia and atrophia to relieve it. The orbital and other branches of the fifth nerve were very sensitive to pressure. His temperature during

Dr. Dennis's attendance, though usually above the normal, reached 100° Fah. only on two or three occasions. The muscles of the left arm and leg were decidedly weaker than those of the right, yet sufficiently strong in the leg to support his weight for a short time. Turning in bed was difficult. When the left arm, unaided, was held at right angles with the body a decidedly muscular twitching began. Occasional muscular twitchings took place when the arm was passive.

He thus continued, gradually getting worse, until November 25th, about five weeks after his giving up work, when Dr. Dennis requested me to see him in consultation.

When I first entered the room he seemed bright, and conversed intelligently. He had not talked long, however, before he began to hesitate in his answers, appearing to have difficulty in understanding me, and being more puzzled in framing answers to my questions. Soon he was unable to form more than one or two words of a sentence, and finally uttered a meaningless "Yes" or "No," or stared vacantly when spoken to. Pupils were small and equal in size, brows were contracted, and he complained of great pain in his head. The eyes were very sensitive to light, making it extremely difficult to make an accurate or satisfactory ophthalmoscopic examination. The acuteness of vision and the condition of the other special senses could not be ascertained. The retinæ were found to be slightly hyperæmic, and the optic disks somewhat swollen. No muscle or groups of muscle were paralyzed, but those of the left arm and leg were weak, and an attempt at co-ordination produced a muscular tremor. The left side of the face was apparently less expressive than the right. The heart, lungs, liver, and kidneys showed no evidence of disease. Temperature was 100°; pulse, 68, and full; respirations 16 per minute.

An opinion was given that the man was suffering from chronic meningitis of months' duration, and that a recent complication of softening or abscess of the brain had taken place.

As Dr. Dennis had enjoined rest in bed, and was doing everything necessary for the comfort and welfare of his patient, no change in treatment was made.

The next day Mr. S. was feeling so comfortable that he got up,

dressed himself, and without assistance went down stairs from the third to the first floor to dinner. After eating he was helped to his third-story room. He expressed himself as feeling tired and sleepy, and lay down to rest. He was left alone about one hour, when one of his daughters looking in his room found him on the floor, where he had fallen in getting out of bed. The left side was now found to be entirely paralyzed. He was placed in bed and left alone. Shortly after this, when looked after, he was found asleep and snoring loudly. As his repose was supposed to be a natural one, he was not immediately disturbed. About 6 P. M. the daughter, thinking it strange that nothing was heard from her father, went into his room and endeavored to arouse him, but to her surprise found him dead.

Post-mortem examination thirty-six hours after death.

Brain.—The dura mater, over the entire extent of its bony attachment, was inflamed and firmly adherent to its osseous envelope. At the base of the brain the external membrane was so closely attached that it could be separated from the bone only in piecemeal by the scalpel. The cranial nerves were apparently uninvolved in the diseased process. No abnormal quantities of fluid were found in the subarachnoid space. The blood-vessels of the pia mater were engorged, and the membrane was slightly adherent to the brain substance. The entire external surface of the brain appeared nearly normal, presenting no gross lesions of softening. Superficial portions of convolutions in the neighborhood of the greatest amount of inflammation were examined under the microscope, and found to be in nearly a normal condition.

An abscess was found on the right side, involving chiefly the centrum ovale of the pre-frontal region, but also to some extent, in its middle part, the inner layers of gray matter of the first, second, and third frontal convolutions. On attempting to localize exactly the posterior limits of the abscess, it was found that a vertico-transverse section through the anterior lobe made just in front of the pre-central fissure externally, and striking the anterior extremities of the ganglia internally, just grazed its posterior limits. The abscess extended forward to within one inch of the anterior extremity of the lobe. Very few, if any, of the white fibers from the ascending frontal convolutions were involved. At

the posterior and interior boundaries of the abscess a bloody nodulated mass two-thirds of an inch in its greatest dimensions was found. Other portions of the brain were apparently healthy. No emboli or thrombi were found.

The abscess did not communicate with the lateral ventricle, nor open upon the external surface of the brain to account for sudden death.

Microscopic examination of the nodulated mass and adjacent parts showed no new cell formation tissue; the nodule and the parts around exhibited nothing besides disintegrating brain tissue with its blood-vessels, and a few blood corpuscles.

Remarks.—We cannot boast of our knowledge of the functions of the antero-frontal lobes, yet pathology, and later, physiology, have from time to time thrown some light on this obscure subject. The "crow-bar case" of Bigelow, the bullet wound related by Trousseau (quoted by Ferrier), the other cases mentioned, analyzed by Charcot and Pitres (reviewed by Ferrier, and quoted by Mills, *Phila. Med. Times*, Jan. 18, 1879), the tumor of the right antero-frontal lobe presented to the Pathological Society of Philadelphia, by Dr. C. K. Mills (*Transactions of Philadelphia Pathological Society*, vol. ix. page 106), and the lesion just described in connection with case second of this paper, in all of which the antero-frontal lobe was destroyed to a greater or less extent without any paralysis attributable to the leison in this region, lead us to accept the conclusion of Charcot and Pitres, that motor disturbances of the slightest character do not necessarily follow lesions in the antero-frontal regions.

For the light physiology has shed upon the functions of this region of the brain, I quote from Dr. Mills's article on tumor of the brain (*Phila Med. Times*, Jan. 18, 1879): "Ferrier, *Functions of the Brain*," p. 230, in his experiments on the antro-frontal regions of the brain of the monkey, generally obtained negative results. Electrical irritation usually caused no special manifestations. Removal or destruction was not followed by any definite physiological results. The animals operated on, however, while not actually deprived of intelligence, had apparently lost the faculty of attentive and intelligent observations. When considering the hemispheres physiologically, Ferrier argues also that

the power of fixing the attention and concentrating consciousness [illegible] inhibition. He shows that if the centers of inhibition, and thereby the faculty of attention, are weak, or present impulses abnormally strong, volition becomes impulsive rather than deliberate.

It will be remembered that the patient in case second, where the lesion was in the antero-frontal lobe, presented symptoms in accord mainly with the physiological experiments of Ferrier. The man was emotional and passionate, and his power of attention was weak and of short duration. He seemed at times to lose will power. Only temporary paralysis was observed, and this always after some fatigue, which may have induced some restraining influence from other portions of the brain, or what is probably more correct, as some of the fibers connecting the motor region of the brain with the muscles of the arm and leg were destroyed, the remaining healthy fibers became exhausted from overwork.

Among the other interesting features of the second case are, the sudden death and the patient's ability at times to walk well, although at others the paralysis was so extensive that he was not able to stand.

That he was able to walk at all was apparently due to the fact, sustained by the post-mortem examination, that not all of the fibers through which motor impulses passed from the brain to the muscles of the leg were involved in the destructive process. When he was resting, a few fibers, for a short time, could do the work of a greater number.

If this view be correct, it will enable us to explain the cause of sudden death, although there was neither hæmorrhagic apoplexy, nor bursting of the abscess into the ventricles, or on the surface of the brain. The unusual strain that he put upon his crippled brain a few hours before his death, in descending and ascending two flights of stairs, and in sitting up to eat his dinner, so exhausted his nerve centers that its effects came like a shock from a severe cerebral hæmorrhage. The occurrence of the hemiplegic seizures may be accounted for, probably, by the sudden overloading of the congested vessels of the brain during his fits of anger.

CASE III.—Abscess of the brain; gangrenous inflammation of the right sylvian artery, and occlusions of some of its branches; facial erysipelas; pneumonia in the left lung.

J. R., male, aged about 40, laborer in a sugar refinery, had been sick and delirious for several days, was brought into St. Mary's Hospital during the past winter, in an unconscious condition. His previous history could not be ascertained. His respirations were rapid and abdominal; pulse small, weak, and irregular; temperature not taken. No urine was obtained for examination. His face was swollen and of a dark erysipelatous hue. The swelling around the eyes was too great to admit of an examination of the pupils. The facial swelling and comatose condition prevented the detection of local palsies, if such existed. He did not regain consciousness, but died about six hours after his admission.

Autopsy eight hours after death.—The abdominal cavity was not opened. The entire left lung was in the second stage of pneumonia; the right lung and the heart were in nearly normal condition. Only slight quantities of serous fluid were found in the pericardium and right pleural sac; considerable fibro-serous effusion was found in the left pleura.

Brain.—The dura matter was slightly congested, but there were no evidences of decided inflammation in it. The pia matter covering the convex surfaces of both hemispheres, and that beneath the right was opaque. Its blood-vessels were highly engorged, and deposits of lymph and pus were found. At and just posterior to the right Sylvian fissure there was considerable quantity of pus, and sufficient lymph to so mask the structures at this point as to make them look like one mass of inflammatory products. The trunk of the Sylvian artery was almost black, its caliber lessened, but apparently not entirely obliterated. Some of its secondary branches, especially the lower ones from the parieto-sphenoidal and sphenoidal arteries were occluded and seemingly gangrenous. After carefully removing the pia matter, the convulsions and brain substance of the left hemisphere appeared nearly normal. The under and external surfaces of the right temporo-sphenoidal lobe from its anterior tip to its junction with the occipito-parietal lobules were softened to the depth of

about an eighth of an inch. A superficial abscess or a mass of softened brain substance, about one inch in all its dimensions, occupied the anterior extremities of the first, second and third temporo-sphenoidal lobules. The contents of the abscess were, in the center, a watery fluid, surrounded by broken down brain substance and blood constituents, and on the outside, a thick layer of pus and other exudative matter.

The cranial nerves were but little encroached upon by the inflammatory deposits. Nothing special was noticed in the sinuses of the brain besides their blackened and engorged appearance. The ganglia were apparently normal.

The patient was not seen by me during life, and he was under the observation of Dr. Strittmatter, the resident physician of the Hospital, only six hours before his death. The circumstance of his death was investigated by the coroner, which necessitated great hurry in examining the brain and its membranes and sinuses. The consideration of the cause of the abscess and meningitis, and the nature of the erysipelas, I shall leave for those who may take part in the discussion.

[After the reading of the above paper, Dr. Charles K. Mills said:

A careful examination of the cerebral sinuses might have thrown some additional light upon the third case. It was of great importance in all cases of abscess of the brain to investigate the condition of the sinuses of the dura mater. Abscess and thrombosis were not infrequently associated, and sometimes held to each other a causative relation. In the account of the condition of the patient (Case III.) it was stated that his face was swollen, and of a dark erysipelatous hue, the swelling around the eyes being too great to admit of an examination of the pupils or of the interior of the eyes. The erysipelatous appearance may have been the psuedo-erysipelas which accompanies some forms of cerebral thrombosis. The opthalmic veins end in the cavernous sinuses. These veins have also a communication with the veins of the face. The facial vein, beginning on the anterior portion of the head, descends about the middle of the forehead, as the frontal vein, to the root of the nose, and is then continued downwards around the angle of the eye, under the name of

the angular vein. This angular vein communicates with the ophthalmic vein. Hence it will be seen how swelling of those veins outside of the skull, which inosculate with the sinuses within, may become the most striking and positive signs of obstruction of the sinuses. Œdema of the eyelids and face, and congestion of the eyes, mean venous stasis in the parts drained by the ophthalmic veins. These phenomena were present in Dr. Eskridge's third case.

These three cases of abscess of the brain, well studied and described, constitute a valuable addition to the literature of intracranial diseases.—*Phil. Medical Times.*

BILE AND DIGESTION. By J. WM. STOKES, M. D., Corinth, Miss.

The investigation of the function of bile in its relation to digestion, involves the consideration of two dependent questions: I. Does bile perform *any* function in digestion? and II. What is that function? And since upon the answer rendered to the former depends the pertinence of the latter, we shall proceed directly to its consideration.

I. First, then, does bile enter at all as a factor into the process we call digestion?

When we consider that bile is the constant secretion of the largest gland in the body; that this gland is supplied with blood from two distinct sources, and in weight is nearly 3 per cent. of the whole body; the inference by analogy alone in the correlation of nature's processes, and especially those exhibited in the animal economy, is that it should perform some highly important function or functions in that economy. That it is poured into the upper part of the intestine when important processes of digestion are transpiring, and only traces of it find exit through the anus with the débris of nutrition, creates strong presumption of some office peculiar to it in digestion. It is still conceivable and possible, however, that bile is solely excrementitious in character; and hence we will first direct attention to this phase of the subject.

Now, bile is either (1) purely an excrement, or (2) enters as a factor in digestion—including in the term absorption. These two reciprocal propositions cover all the logical possibilities in reference to the presence of bile in the intestine; for if bile perform *any* function in digestion, it cannot be solely excrementatious in character, and *vice versa*. Of course, it might perform its function, be broken up in the process, and all its constituents discharged with the débris of the system; but even in that case it could not strictly be termed an excrement. Yet, not even in this acceptation would the term apply to bile. Hence we shall address ourselves in the first instance to the elimination of the possibility that bile is an excrement, and therefrom the last term in the above antitithesis will follow by necessity.

(1) Bile is not an excrement. Were this its character in reality, we should find it all, or its constituents, in the excretions of the body; and there are but two main routes by which it may find exit—(a) with the alvine dejections, or (b) with the urine. Hence it must all be passed with the fæces or with the urine, or complementary portions by each of these routes. No account is made here of the excretory functions of lungs and skin: since the composition of biliary matters is such as to preclude the possibility of their ejection from the system in this way.

(a) It is not all passed with the fæces; nor yet more of any element, than might be accounted for by accidental entanglement. As a matter of course, cholesterine, pre-existing in the blood as an excrementitious principle, is to be regarded as holding a *merely* accidental association with bile in common with other liquids and secretions of the body. With this preface, we proceed to scrutinize and compare the data upon the subject.

By careful and protracted observation, Bidder and Schmidt found that a dog weighing 8 kilogrammes excreted in five days 97.3 grm. fæces, 40.9 grm. of which were solid. The solid matters of bile secreted in the same time should be 39.52 grm.—i. e., nearly equal to the solid portion of the fæces in this case. But the fæces showed only traces of bile solids upon application of the usual tests; and in any case it is evident that vastly more

than 1.38 grm. of the solid fæces must have been furnished in the given time, by the débris of nutrition and waste.

Now it is true, that if the bile solids had split up in their passage down the alimentary canal their elements would not give the characteristic reaction. How is it, then, in reference to the elements of bile in the fæces?

Sulphur is one of the most constant of these elements, and in bile of dogs amounts to 6 per cent. of the solids. Being very little subject to change of any kind, this element should be readily detected. Hence in 39.52 grm. solid bile secreted in 5 days, there should be 2.37 grm. sulphur. The fæces in the given case contained, however, only .334 grm. sulphur, more than half of which, it was estimated, must have been due to the abundant hairs present in the fæces, It is evident, therefore, that but a small proportion of the sulphur secreted in bile in the given time passed out with the fæces.

Cholalic acid also enters largely as an ultimate element of bile; and its presence is readily detected. In 1862, Hoppe collected for three days, and weighed, the fæces of an 8 kilogramme dog. They aggregated 287 grm.; in which was found by analysis 1.1 grm. cholalic acid for the entire time, or .36 grm. per day. Now, according to the accepted standard for a dog of that weight, the solid acids of bile secreted in 24 hours would be 4 grm. But .36 grm. cholalic acid, by synthesis, would represent .46 grm. tauro—or .41 grm. glyco-cholic acid; hence less than ½ grm. out of the 4 grm. secreted and discharged into the intestine, found exit with the fæces. It follows, therefore, that but a small portion of bile solids, and this portion mechanically entangled most probably with the débris of the system, is carried out with the fæces.

To this conclusion it may be objected that the premises are insufficient in number to establish their generality. It must be remembered, however, that the above are typical cases, expressing the *general results* of several experiments of several experimenters, and are accepted by physiologists as facts.

(b) We come now to consider the question in reference to the only other avenue of escape as an excrement—the urine. Unless investigation here gives evidence that the complementary

portion of bile solids finds exit in this way, our proposition is established; the excrementious character of bile is negatived; and the other term of the antithesis follows necessarily from its exclusion.

It is a matter of some regret, that in observations upon dogs affected with biliary fistulæ, attention was not extended to the urine also; but the data furnished by experiments, directed originally to a different end, are entirely competent to decide the point now in question.

By scanning the results of Lehman's series of experiments upon himself, with a view of determinimg the relative constituents of urine under various kinds of diet, we learn that upon a purely nitrogenous or animal diet, he excreted in 24 hrs. 53.2 grm. urea; upon a purely *non* nitrogenous diet, 15.4 grm. urea in the same time. This last, then, may finally be assumed to represent the normal daily amount contributed from all sources in the body, independently of food—from secretions and disassimilative process. Now urea bears to the solids of urine the proportion .524; hence 15.4 grm urea represent 29.6 gram. solid matters in the the urine in 24 hrs.; and since the amount of bile secreted in 24 hrs. is known to be affected to a scarcely perceptible degree by various foods and conditions, its solid matters in the same time would aggregate 30 grm.—i. e., the solid matters of bile secreted exceed the solid matters of urine in the given time by .4 grm.

But beyond doubt much of the urea is the product of disassimilation of nitrogenized tissues; so that the real excess of bile solids secreted over the portion by any possibility excreted in urine must be very large indeed—if in fact any is so secreted.

Some additional weight is given to this by the experiments of Prof. A. Flint, Jr., upon the pedestrian Weston, and corroborated by the observations of Dr. Pavy upon the same individual. These gentlemen found that urea—the element of urine, which must contain the major portion of bile solids excreted by this route—is dependent in amount upon muscular exercise more than any or all causes else.

During the five days' walk, included in the period of observation, Weston ingested daily in food 234.76 gr. nitrogen. The

entire daily amount excreted in urine and fæces was 361.52 gr. Now, 234.76 gr. must represent all the nitrogen by any possibility derived from food ingested. Hence, 361.52 gr.—234.76= 126.76 gr. must represent the portion of nitrogen furnished from all sources in the body independently of food—*i. e.*, from disintegrated tissues and bile, say, five times this, or 633.8 gr., equal the amount from these sources during the day's walk.

In the same period, the solid matters of bile alone would equal 2,310 gr., and by quantitative analysis of its nitrogenized constituents, the nitrogen thus supplied would be 34,175 gr. Now, the loss of weight actually sustained during the walk was 26072 gr., 3 per cent. of which, or 782.2 gr., were nitrogen. That is, the nitrogen of the disintegrated tissues alone exceeded, by 148.4 gr., the entire amount excreted by both fæces and urine, over and above that derived from food. The products of disassimilation *must* be excreted, so that it is difficult to see how bile could have furnished any part of the amount. The conclusion seems irresistible, therefore, that but a small portion, if any, of the bile solids or fluids escape from the body through the way of the urine.

An interesting question presents itself here as to the ultimate destination of bile. It is constantly secreted and discharged into the duodenum during the process of digestion; it is not excreted as a whole, nor yet appreciably in its elements—what becomes of it?

Most probably it is absorbed from the intestine after performing its part in digestion (if any), and returned to the liver, to be again secreted and discharged—a sort of circulation of bile similar to that of blood.

Lafter injected the coloring matter of rhubarb and sulphate of soda into the duodenum of a dog, and observed in the space of a minute the same colors in the bile collected from a biliary fistula.

Schiff injected 180 c. c. fresh ox bile into the duodenum of a dog that, previous to the experiment, had discharged 2 c. c. bile from his fistula in 20 minutes. After waiting a short while, the amount collected in 20 minutes from the fistula was 10 c. c., and at the end of an hour after the injection 8.5 c. c. in 20 minutes.

Further. the experiments of Heidenhain show that bile of guinea-pigs. as a rule, gives no reaction with Pettenkoffer's test; yet. if ox bile be injected into the duodenum of one affected with a biliary fistula, in one-half hour thereafter, and for one, two, three hours, a distinct reaction is given by the bile collected from the fistula. This gentleman also observed a change in the color of dog bile soon after the injection of fresh ox bile into the duodenum.

This would explain a fact generally observed, that the amount of bile secreted in a given time is diminished by purgation; where doubtless the bile is swept out of the intestine, entangled in its contents, ere it can be absorbed. Thus the amount secreted by the liver is diminished, until this unexpected loss can be repaired from the resources at hand. This is precisely similar to the fact observed by Schiff, that the rate of secretion is at once diminished by diversion of bile from the intestine.

This concludes what we have to say upon the excrementitious character of bile. We have shown that neither is it, or any considerable portion of its elements, excreted by the urine and fæces severally, nor collectively by both.

(2) Is there now any *positive* evidence that bile is intimately concerned in digestion?

At the outset here, it is a significant fact that ingestion of food is followed immediately, and for some time thereafter, by a largely increased flow of bile into the intestine—a fact more marked, it is true, in animals that feed less frequently than man; yet in man sufficintly marked to indicate an epoch in its flow. Furthermore, after reaching its climax, it gradually subsides, as the digestive process approaches completion, into a condition of stasis until the stimulus is reversed. And if this be indefinitely withheld, establishing the condition of fasting, and the animal killed in this state, the bile bladder is invariably found to be distended with the secretion; whereas, if killed soon after feeding, the bladder is always found empty. I shall not dwell at any length upon the class of sensations, referable to digestion, which by common consent is attributed to disordered function of the liver. This vulgar opinion may not possess great scientific significance of itself; but certain it is, that such symptoms are most generally re-

lieved by administration of those agents which act electively upon the liver, and stimulate it to greater activity.

In further corroboration of this view is the observation of Eaglesfield Smith, that great benefit accrued to a patient affected with jaundice from the administration of fresh bile from a mammal. It is not unworthy of remark, too, at this juncture, the close analogy subsisting between the symptoms characteristic of a well-developed case of jaundice, and those exhibited by animals affected with biliary fistulæ. The same fetid fæces and flatus, the same progressive emaciation characterize both; and if in the former the condition be not arrested, the same result ensues in both; a correspondence which might have been anticipated, since the result should be the same, whether bile be diverted from the digestive process directly by biliary fistula, by occlusion of the ductus communis or by refusal of blood to surrender in the liver its biliary material. The result is in reality the same—absence of bile from the digestive process; and in all cases alike nutrition is interrupted.

We come now to the consideration of a class of experiments, to which objection has been made, rather impertinently, that they establish a pathological rather than a physiological condition. So they do; but it is this very pathological condition, which remains and gradually increases in gravity after the immediate effects of the operation have subsided; it is this very condition that is fraught with information in reference to the function of bile in digestion. For, if it performed no function, then should its absence from the process be attended by no untoward consequences. We refer to experiments upon animals in which the bile was diverted from the intestine by means of biliary fistulæ. And first in reference to perseverance, success and uniformity of results, stands Schwan.

He established biliary fistulæ in eighteen dogs, ten of which died from the direct effects of the operation. In two the duct was re-established, and the remaining six, in which the bile was completely diverted, all died in 7, 13, 17, 25, 64 and 80 days, respectively, after the operation, with all the symptoms of profoundly disturbed nutrition—inanition, loss of flesh and muscular power, unsteadiness of gait, falling of hair.

Subsequent experiment upon 30 dogs by the same observer, corroborated his former results. All died; though one lived four months, and one a year—the symptoms gradually increasing in gravity until death ensued.

Precisely similar in all essential particulars were the results obtained by Bidder and Schmidt from similar experiments. The several subjects of their observation, as well as Claude Bernard's, lost weight steadily, though appetite was unimpaired, and even increased in voracity; the skin became loose; muscles were scarcely perceptible; hair fell out. They all noted the exceedingly disgusting odor of the fæces and breath, and abundance of flatus in the intestine.

Prof. A. Flint, Jr., also performed, with distinguished success, the operation establishing a biliary fistula upon a dog, completely occluding the common duct and diverting the bile. This dog passed through all the stages above described, dying at length on the 38th day after the operation. The observer noted no fetor of breath in this case; but adds that, though the animal ate ravenously of lean meats, it could not be induced to touch fats, even after fasting a considerable time. In all these cases the occlusion of the ductus communis was demonstrated by post-mortem dissection.

Nasse claims to have kept a dog affected with a biliary fistula alive for five months without appreciable loss of weight; but it died at the end of that time without any apparent cause. The general results, however, obtained by this observer corroborate those given above.

As an offset to these numerous cases, we have now to consider two individual cases of an apparently contradictory character. One is furnished by Bloudlot, whose dog was allowed at first to lick the bile as it flowed from the fistula, but was afterward prevented by a muzzle. It lived five years in good health, being used meantime for hunting. Post-mortem dissection in presence of several physicians and students showed the duct to be entirely obliterated. It is to be remembered, however, in this case, that except during the first and last three months of the five years, the dog was not under Bloudlot's observation at all; and we are not informed whether it was allowed in the interim to lick the

bile as at first, or even whether the fistula remained open. So that, whatever contradictory weight this might have, must be discounted in the absence of information upon these points.

The other is supplied from the reports of the Edinburgh Committee, under whose observation, as reported, a dog similarly affected was kept five months, with a gain meantime of four kilogm. in weight. It is by no means certain, however, that in both these cases a duct was not improvised under the conservative laws of nature; or that, under the same law, sufficient bile did not find its way into the intestine by osmosis. More remarkable provisions than either of these supposed have occurred in the animal economy. And the former explanation gains credence from an experiment related by Prof. Flint, in which the dog lost the canula from his fistula. The wound soon healed, and some months afterward the dog, apparently in good health, was killed. Upon examination the ductus communis *seemed* to be obliterated in this case also, and was in reality; but a tedious and careful dissection of neighboring tissues was at length rewarded by the discovery of a small, tortuous canal, through which bile found its way into the intestine. Like perseverance in the cases above cited might, and would in all probability, have discovered a similar provision. But discounted though the numerous concurrent cases be by these isolated experiments; yet, in view of all the evidence, there can be no rational doubt that bile performs some important function in the process of digestion. Indeed, this seems to be as well established as any other general physiological fact.

As this brings us to the conclusion of the first division of the subject, let us summarize the points established: (1) Bile is not excreted to any considerable extent, either (a) with the fæces, or (b) with the urine; and even the small portion thus excreted is most probably carried out by accidental entanglement with excretory principles. But there seems to be rather a circulation of bile, in some respects similar to that of blood. (2) By sequence from (1) and by disturbance of nutrition exhibited in its absence, it must enter as an important factor in digestion.

II. What then is that function which it performs? That its function should be complex, and not clearly marked like that of

gastric juice, might, as we have stated above, have been anticipated *a priori* from its very composition—comprising a variety of complex substances more or less loosely united, most of which are readily resolved into their ultimate elements, possessing distinctive reactions. Moreover, we do know that such resolution transpires with more or less facility in various parts of the intestinal canal.

(1) First, then, bile seems to aid in digestion by retarding putrefaction, which is prone to occur when a variety of disintegrated and disintegrating substances are collected together in the presence of heat. This is attested by the unbroken testimony of experimenters to the offensive odor of fæces, when bile is diverted from digestion, and to the presence of flatus in large quantities under similar circumstances—both of which are invariable concomitants of putrefaction within and without the intestine.

It is established by experimentation extra-intestinal. Von Gorup Besauez demonstrated that, when meat is digested with bile the temperature of the body, the putrefaction process is postponed for a considerable period beyond that at which it is set up under the same circucumstances without bile.

A similar postponement of fermentation occurs in syrup and urine, according to the same observer. Moreover, Claude Bernard found that fermentation in yeast taken from a dog's stomach was completely arrested in presence of bile.

Stolukoff gives the following comprehensive and intelligent variations of these experiments. Bile and water; fibrin, bile, water; fibrin, fat, water; fibrin, fat bile, water; were grouped as above in separate bottles, and allowed to remain undisturbed from the middle of June to the middle of August. The gas, collected from each over mercury, was, at the end of the time, found to be greatest in quantity from the jar containing fat and fibrin without bile. Though the water and bile had split up into new products, there was no gas given off from the jar containing them alone. The gas collected showed about 92 per cent. CO_2; while the bile acids had split up into glycocol, taurin and cholalic acid.

Bidder and Schmidt also kept meat and albumen 48 hours in s ... ion of bile acids at the temperature of the body, without at

the end of that time any putrefactive changes being apparent; whereas the same substances treated simply with water gave distinct signs of such changes in 24 hours. But it is not necessary to further multiply testimony on this point.

(2) Bile or some of the products of its decomposition acts as a persuader of peristalsis in the bowel. This property seems to be enjoyed by its pigments and its acids; but in an especial degree by cholalic acid—as shown on the one hand by Shülein, who found purging and vomiting follow the administration of bile acids; and on the other by the statements of Tiedman and Gruelin, and Eberle, to the effect that all dogs with biliary fistulæ under their observation severally were costive, and the fæces very hard and white. Bile seems, therefore to be a natural inviter of peristaltic action and intestinal secretion.

(3) Bile emulsifies fats to a certain extent, and facilities their absorption. This seems to be the most generally conceded of all its properties; and has been attributed to it since the earliest times. The former is easily demonstrated in a test-tube; the latter by the fact, first demonstrated by Von Wittinghausen, that fats find their way through animal membranes or plaster wetted with bile and at the temperature of the body, much more readily than when dry or moistened with water—indeed there is no evidence that fats are ever absorbed in any marked degree, save through the action of bile upon the membranes of the walls of the intestines. How this is effected does not appear. Most probably the fats are subjected to finer subdivision or else the stomata of the membrane are modified thereby—or possibly both these occur.

The absence of fat through failure of these modifications would account for the clear, colorless character of chyle observed by Brodie, Bidder and Schmidt, Magendie, and Tiedman and Gmelin, in dogs with biliary fistulæ or tied ducts. According to these last two, chyle of dogs in normal condition was white and milky, while the liquid found in both lacteals and thoracic ducts of those with tied ducts was clear and translucent, the difference being due to lack of finely divided particles of fat in the latter.

However it may effect its purpose, one fact is incontrovertible,

namely, that the presence of good healthy bile is a *sine qua non* to the elaboration of fats in the animal economy.

(4.) Fresh human bile, in common with that of many mammals, in a limited extent converts starch and hepatic glycogen into sugar. (Bufalini and Whittish.)

It possesses no power over the sugars themselves. (Frerichs and Shiel.)

Whether this is an original and invariable property, it is impossible to say; but it is difficult to see how so limited an action could be necessary to vitality. If, however, sugar in certain proportion be a necessity to the healthy performance of vital functions, it is conceivable that, in certain conditions where the direct sources of sugar supply are cut off, this power of bile over hepatic glycogen might rise to considerable prominence.

These in the aggregate constitute the function of bile in digestion, so far as can be predicated with any certainty in the premises. Are they sufficient to account for the presence of bile in the intestine? We can only say in reply, that the absence of bile from the intestine is invariably attended by an almost total suspension of these actions—several or all of them—and the suspension of these actions for any considerable period produces death. For our part, we cannot see why elaboration of fats, repression of putrefaction, and promotion of peristalsis, should not collectively constitute a satisfactory account of its presence—certainly they are essential to existence.—*New Orleans Medical and Surgical Journal.*

A CLINICAL STUDY OF THE SMALL GRANULAR CELLS OF THE BLOOD. By JAMES T. R. DAVISON, M. D. Edinburgh. Late Resident Physician to the Royal Infirmary, Edinburgh; House Surgeon to the Royal Southern Hospital, Liverpool.

Blood contains, in addition to the red and white corpuscles, a number of granular colorless cells, which present varied forms and sizes, and are generally very much smaller than the red corpuscles when examined in the ordinary way. They have a great

tendency to adhere to the cover-glass or slide; they occur singly or in groups. Some time after the blood has been drawn from the finger these cells become clearer; if present in groups the individuality of the cells is lost, and the group becomes a single granular mass. In either case fibrin or fibrin-like processes protrude from their surface. These cells have been known for some time to Professor Norris, who has traced them in their development, and states them to be undeveloped red corpuscles. Bizzozero has lately studied them in the living capillary. In healthy blood they are present in extremely small numbers, but are very abundant in certain pathological states. I have examined these cells in 150 specimens of pathological blood, noting in each case the temperature of the patient from whom the blood was drawn, whether anæmic or not (in the last 100 cases, if anæmic, I noted roughly, the degree anæmia present), and lastly the nature and duration of the disease.

My observations lead me to believe that the small granular cells of the blood are present in excess under two conditions—first, as the result of their excessive formation brought about by certain states of the system demanding it; and secondly, as the result of diminished power in the process of charging them with hæmoglobin, whereby many of them remain in their undeveloped state, and do not become fully formed red cells.

In the inflammatory exudation produced by a blister, Dr. Burdon-Sanderson years ago found granular corpuscles which degenerated into fibrin. These corpuscles must be the cells under consideration at present, for these cells are constantly seen to change into fibrin, while leucocytes never undergo this change. Here, then, we have the important fact that in inflammatory serous exudation, such we have in pleurisy, rheumatic fever, etc., the small granular corpuscles of the blood migrate from the blood-vessels. Dr. Burdon-Sanderson in his first Lumleian lecture this year described ordinary inflammation of the mesentery, and after referring to the migration of leucocytes he states that the surface of the mesentery becomes covered by a coagulable fluid. This coagulum, when examined under the microscope, is seen to consist of fibrin which Dr. Burdon-Sanderson ascribes to the degeneration of leucocytes. Now, if a drop of blood be examined under

the microscope the leucocytes are seen to remain intact for a long time, and never undergo the same changes as the small granular cells—that is, they never degenerate into fibrin. Moreover, Professor Norris has found that the fibrin of coagulation is due to changes in the undeveloped red cells. We must come to the conclusion, then, that the coagulable fluid on the surface of the mesentery was full of undeveloped red cells, which had degenerated into fibrin—that is, that in ordinary inflammation, in addition to the migration of leucocytes, there is a migration of the small granular corpuscles. We have good grounds, then, for believing that not only in serous inflammatory exudation, but also in purulent exudation, there is a migration of the undeveloped red corpuscles. If then, in local inflammation the blood is drained of its small granular corpuscles, nature must in some reflex manner stimulate the formative organs of these cells to increased action, in order to meet the demand made upon the blood. Hence in local inflammations we would expect to find an increase of these cells in the blood. I will not refer in these notes to the part played by leucocytes in the blood under these conditions. Such an increase we find in inflammation. In acute abscesses the blood is loaded with undeveloped red cells. In a case of acute periostitis with a large amount of pus these cells were found abundant in the blood. In rheumatic fever and subacute rheumatism they are again present in abundance. In these last conditions we have serous inflammation in the joints, making a great demand upon the blood. During the fever of pneumonia I did not find the increase so marked as in rheumatic fever. Possibly the inflammatory exudation thrown out in pneumonia does not contain many small granular cells. That high temperature *per se* is not the cause of the increase of these cells was proved in a case of typhoid fever, where, after a fortnight of high temperature, there was scarcely any increase of these cells; also in another case of typhoid, with a temperature of 103.4°, and of five weeks' duration, the increase was very small. In typhoid there is no drain from the blood, at least no loss of the solid element of the blood, and therefore no demand is made for an increase in the production of these elements. In great loss of blood from hæmorrhage there is a great loss of the

red corpuscles, and on the same principle we would expect after a time to find an increase of the undeveloped red cells, in order that they should replace the lost red cells. If after excessive hæmorrhage we examine the blood, we actually find a great increase in the number of the small granular cells. Another source of drain of the solid elements from the blood is found in chronic discharges of pus. In cases of spinal caries with discharge of pus, in cases of necrosis, in those where any large wound is constantly secreting pus—in fact, in all cases where there is chronic pus formation, the blood is full of undeveloped red cells. I shall show further on that a drain of the liquid element of the blood, however great, does not affect the number of these cells in the blood.

I will next consider the increase of the small granular cells, in relation to anæmia. There appear to be two factors in the production of the anæmic state, both of which may be present together, but not necessarily. One factor is a lowering of the power by means of which the small granular corpuscles are charged with hæmoglobin, and changed therefore into fully developed red cells; the other is a lowering of the formative power, which creates the small granular corpuscles, and therefore which creates the fully formed red cells. In the one case the red cells, developed and undeveloped, are present in normal quantity, but the latter are in relative excess. Such a condition would obtain in chlorotic anæmia, where there is no loss of substance in the body, and therefore we would infer no loss of substance in the cellular element of the blood, but where an impaired vitality retards the full development of the red cells. Such a condition would obtain, also, in the convalescence from acute diseases. I have found, as a matter of fact, abundance of small granular corpuscles in the blood of chlorotic patients, and in that of those convalescing from rheumatic fever and pneumonia.

In the second kind of anæmia the predominant factor is the lowering of the formative energy. As a typical example we have the anæmia present in the malignant dyscrasia. Here there is a general loss of substance, not from any high temperature, as this may be altogether absent, but apparently from a general impairment of formative power. If thus the cells of the different

organs suffer in their numerical formation, we may naturally suppose that the red cells of the blood are also placed in the same condition. This appears to me the only explanation which can account for the small increase of the undeveloped red cells which I have observed in cases of great anæmia and emaciation due to malignant growths. It appears to me that the red cells are diminished in number, so that the energy which charges the undeveloped ones with hæmoglobin has a smaller area over which to exert its strength, and thus although this energy too must necessarily be greatly impaired, and as a consequence some of the small granular cells must remain undeveloped, still the impaired energy has less work to do, there being fewer small granular cells to develop, and hence it is that in such conditions we find in the blood but a small increase in the number of the small granular cells. I believe that the same explanation must account for the small increase of the cells which I observed in a case of chronic dysentery with great anæmia and emaciation. The constant albuminoid discharge from the intestines appears to exert the same influence on the formative energy as in the case of the malignant dyscrasia. Lastly, the small increase observed in the cases of chronic Bright's disease must be explained in the same way. In the cases of chronic Bright's diesease and dysentery the blood is drained of its liquid element, and the increase of the undeveloped red cells is small; in those cases where the drain consisted of solid elements the increase was marked. It must be borne in mind that the two conditions under which an increase of the small granular cells is present may exist together in the same case. For example, in phthisis, where these conditions are typically present, these cells are very abundant. In phthisis we have cavities secreting pus, hence there is a reflex call for an increase in the formation of the granular cells. But in phthisis there is also a general impairment of vitality, therefore the power to charge these cells with hæmoglobin is weakened, and hence the very large number of undeveloped red cells seen in the blood of phthisical patients. Again, in cancer the disease of these cells, as explained above, is small, but let the cancer bleed or let it constantly discharge, and matters will be different. We now have a drain of the solid elements of the blood, with the accompanying

increased reflex formation, and so we find, in bleeding cancers or in those from which there is a discharge, an abundance of small granular corpuscles in the blood.

In conclusion, I have purposely avoided in this paper any reference to the behavior of leucocytes in the blood under the conditions in which the other cells have been considered. The increase of leucocytes in the blood under certain conditions is important, and the relation of their increase to that of the small granular cells in the same blood may one day prove to be of great diagnostic value. There is some ground for believing that, in certain classes of inflammations, the leucocytes are increased in greater relative proportion to the small granular cell, and *vice versa*. By a knowledge of the conditions under which either increase takes place, we may, perhaps, be able, by an examination of the blood, to determine whether an ordinary pleurisy has become an empyema, and to arrive at other diagnosis. A clinical study of the blood in all cases is, therefore, of the highest importance.—*London Lancet.*

SYPHILIS—ITS RELATION TO SCROFULA.—DR. JOHN B. ROBERTS (*Medical Times*, March 25, 1882,) presents the following views:

I. Syphilis and scrofula undoubtedly show a tendency to affect similar structures, as is proved by the many diseases formerly classified as scrofulous now known and admitted to be inherited syphilis. In fact, those who hold that the two affections are distinct are obliged sometimes to admit that it is sometimes impossible to determine from symptoms, or even from the antecedent history obtainable, which disease is responsible for the lesions exhibited.

II. Scrofula has been, and is, most common at times of life, in historic periods, and in countries in which syphilis is known to have been and to be prevalent and virulent. Again, scrofulous diseases are less prominent and more benign at the present day than formerly, when acquired syphilis was more destructive, because less judiciously treated.

III. It is so well known that syphilitic parents have, as a rule, syphilitic children that an exception gives rise to scientific comment. Scrofula is usually an inherited condition, and could readily, therefore, be due to such a widespread and prolific parentage as syphilis.

IV. Scrofulous affections are found in the highest stations of life—a fact which would be well nigh inexplicable if scrofula were the result of exposure, insufficient food, filth and bad air. If it be a grandchild of syphilis, however, its presence in every household can be as general as the immorality that gives birth to its ancestor.

V. Cases occur similar to that reported by Lugol, who refers to a family of two healthy children, the father of whom subsequently contracted syphilis and inoculated his wife. His third child was born, who, after exhibiting many scrofulous symptoms, died at eighteen years, though the elder brother and sister presented no such conditions of ill health.

VI. Acquired syphilis has been accused of awakening scrofulous manifestations in those predisposed to scrofula in whom no symptoms have occurred for years. This suggests a relationship between the affections which is very intelligible if scrofula be viewed as a remotely inherited syphilis.

VII. Scrofula is the condition furnishing deposits of tubercle, which are the result of infection arising especially from cheesy accumulations. Syphilis is an incessant instigator of inflammations and of gummy tumors which frequently undergo caseous degeneration. Hence pathology points at syphilis as an agent well calculated to give birth to the scrofulous diathesis.

VIII. The most effectual remedies in the treatment of syphilis, whether acquired or inherited, are mercurials and preparations containing iodine. These so-called specifics in the management of syphilis are agents of greatest benefit in alleviating scrofulous manifestations.

The arguments of those denying the syphilitic parentage of scrofula may be summarized as follows:

I. Scrofula is not inoculable, as are the primary, the secondary, and sometimes the inherited lesions of syphilis.

II. The successive steps between primary syphilis in the pro-

genitor and scrofulous diseases in the posterity have not been traced by any scientific investigators, who quote only isolated cases of apparent relationship.

III. Scrofulous affections are found in patients who have presented no such manifestations in early life (when inherited syphilis is especially noticeable), who have had neither scrofulous nor syphilitic parentage, and who had never acquired primary syphilis. Moreover, phthisis, which is a lesion of scrofula, is found very frequently in animals not known to have syphilis.

IV. Scrofula is not considered a factor in the causation of syphilis, as might be expected if there was a mutual relationship between them.

V. Scrofula is believed by some to have existed in Europe before the advent of syphilis, and according to certain writers is prevalent in countries where syphilis is rare.

VI. Syphilis yields more quickly and readily than scrofula, though the same or similar remedies may be available in both diseases.

Such are the arguments of the advocates and of the opponents of the syphilitic origin of scrofula. The affirmative side seems to me to present more points than are generalizations, and, at the same time, to offer greater difficulties for its opponent to meet. The negative arguments are weakened by the facts—1, that most animal poisons become weakened when passed through several subjects, and that is evidence pointing to the possibility of scrofulous disease being transferred from one person to another; 2, that the links of the chain must be imperfect when the period of hereditation and differentiation requires probably several generations; 3, that it is admitted even by the affirmative side that scrofula may arise from ordinary inflammations, and hence may occur in animals as well as in a non-syphilized man; 4, that many causes in nature cannot assume the rôle of effects; 5, that statistical evidence is proverbially subject to errors; and, 6, that the relative time of therapeutic influences depends more on the tissue-changes produced than on the etiological agency.

A survey of the field has led me to the conclusion that vast numbers of cases of so-called scrofulous disease are the direct result of inherited syphilis, but that, until pathology ascribes the

tuberculous diathesis to a *special* and not a mere inflammatory infection, it is illogical to deny that acquired, and therefore also hereditary, scrofula may, and at times does, arise from absolutely non syphilitic precedents.—*Detroit Lancet.*

TENOSYNOVITIS; ITS CAUSES, NATURE, SYMPTOMS AND TREATMENT: BASED UPON AN ANALYSIS OF FIFTEEN CASES. By WILLIAM BARTON HOPKINS, M.D., etc. [Read June 7, 1882.]

TENOSYNOVITIS may be defined as an affection usually occuring in the forearm, and characterized by a peculiar creaking of the tendons as they move in their sheaths, depending upon a particular kind of strain to which the muscles belonging to these tendons have been subjected.

Cause.—The predisposing cause of the affection is the occupation of the individual, and in studying, therefore, fifteen cases, occurring in subjects of otherwise average health, the nature of their employment is worthy of special attention. In three of the fifteen, the disease occurred in men employed in a dye-house, whose work consisted in wringing the goods, which had been soaked in dye; in two, the patients were weavers, who throw the shuttle from side to side with the index finger of the right hand; one case occurred in a baker, from kneading bread; one in a boiler riveter, from hammering; one in a car driver, from using the brake; one in an iron moulder, from continued use of the shovel; one in a plaster worker, from stirring plaster with a hoe; one in a washerwoman, from using a clothes wringer; one in a laborer, who continued to work after receiving a severe contusion of the forearm from the fall of a heavy iron pipe; and one each in a rope twister, a marble rubber, and a painter.

In contrasting the above-named occupations with many others, requiring far more muscular effort, and giving employment to many more workmen than these, the idea suggests itself, that it is not the mere amount of strain to which the muscles and their tendons are put, that predisposes to the disease, but rather the kind of effort, which is of a tedious, continuous, monotonous sort. On the other hand, trades which would appear likely to furnish subjects for the disease more frequently than those which have been already spoken of, fail to do so. This, in some instances, can be

explained. Gold beating, for example, where an eight-pound hammer is used almost uninterruptedly for five hours, and is carried from above the shoulder down to the level of the waist, would seem to contradict this view, as the disease is unknown to one of the largest gold leaf manufacturers; a careful study of the movements of the operatives in performing this work, however, shows that the strain is not upon the muscles of the forearm, but rather upon those of the shoulder and arm; as the hammer descends simply by gravity and returns by recoil from the elastic block, composed of alternate sheets of gold and animal membrane, to a point where the biceps and deltoid muscles complete the elevation.

The exciting cause of the attack is usually the resumption of work to which the individual is thoroughly accustomed, after a shorter or longer interval, when he is out of practice, and when the parts involved in executing special movements have become less actively nourished; though in the case of the washerwoman, the clothes wringer was used for the first time, and the rope twister was doing work that was new to him. In the laborer the attack was of traumatic origin.

Pathology.—The means of determining the exact lesion in this disease are necessarily to a certain extent conjectural, but as the pain and crepitation are coincident in their onset and subsidence, as there is no impairment of motion after recovery has occurred, and, as the parts under treatment regain their normal condition in a very short time, it seems highly probable that there is no true inflammatory process at all, certainly none extending beyond the stage of congestion, and that the creaking which exists is due to insufficient lubrication, with consequent drynesss, not, as has been supposed, to exudation of lymph. Under rest and counter-irritation the congestion very soon disappears, the synovial surfaces pour out their proper fluid, and the tendons once more move smoothly and noislessly in their sheaths.

Symptoms.—Soreness, amounting to positive pain upon motion or pressure along the course of the affected tendons, inability to use the part, and the presence of the peculiar creaking, which is communicated to the finger on palpation, are the symptoms which denote the existence of tenosynovitis.

Diagnosis.—From its common seat upon the dorsum of the forearm, this affection may be mistaken for fracture of the radius. The history of the case, however, showing that there has been no blow or fall, as a rule; the quality of the crepitus, which is much softer and finer than that of fracture, and like that of cellular emphysema after fracture of the ribs, or that produced by rubbing two pieces of cloth between the fingers, and the way in which the crepitation may be elicited,—all leave little chance of error. The disease will not be mistaken for a strain of the muscle, if a careful physical examination is made.

Treatment.—From what has been already said, it will be seen that the disease is at once acute, painful, and disabling. It, however, yields, as a rule, readily to treatment; for the patient can seldom work more than a day after he is attacked, and finding that he exhausts the usual home embrocations, without relief, promptly seeks aid elswhere; this enables the surgeon to institute treatment before an advanced stage is reached and permament mischief done by a disposition of plastic matter. Absolute rest of all the parts concerned is the most important element in the treatment; a palmar splint, therefore, from the elbow to the tips of the fingers is applied, when the forearm is the part affected. Counter-irritation is next indicated, and may be employed in one of two ways. If the skin is red, a band one inch broad of tincture of iodine should be painted in an oval form around the area over which creaking is felt; while a lotion of lead water and laudanum is applied within this band. In cases where there is but slight creaking, and no redness of the skin, tincture of iodine may be painted directly over the diseased part, without the employment of any lotion. The dressing is re-applied each day, until all pain, tenderness, and creaking have disappeared, which generally occurs at the end of four or five days. After this a roller bandage alone is continued, until the parts have regained their tone.—*Phil. Medical Times.*

Threatened or Actual Epidemics.

The following circulars contain information concerning the reports of the Marine Hospital Service to the prevalence of conta-

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ARTICLE I.

THE PRESENT STATUS OF ANTISEPTIC SURGERY. A Report made by Request of the Chicago Medical Society,* by ROSWELL PARK, A.M., M.D., Lecturer on Surgery, Rush Medical College, Surgeon to the Michael Reese Hospital, etc.

In making this report, I prefer to omit all theoretical discussions concerning the bearings of the germ theory, and the influence of germs in producing fermentation or decomposition, often carried to putrefaction. The acceptance of this so-called theory —which is in reality no longer a theory, but an incontestably proved fact—is so necessary for the proper practice of antiseptic measures, that he who cannot, so to speak, take the oath of allegiance to it, is committing a gross inconsistency in adopting in his work any of the proper antiseptic details. Moreover, this part of the subject will in due time be much more ably handled by another member of this society.

* Read at the regular meeting, October 16, 1882.

Accepting, then, this theory as the firm basis of fact to which we cling, it remains for us to study how we can best strengthen our position, and better prepare for a conflict in which knowledge is arrayed against overwhelming, and even infinite numbers.

To what extent do statistics help us? They serve to strengthen our convictions, but I imagine that few men began to use the Lister dressings impelled by a mere study of statistics. In fact, up to a very recent time, very few have appeared from the fountain head. Until Bryant, Savory and others provoked Mr. Lister into giving his results in figures and tables, we had to depend largely on those furnished from the German clinics. But very recently a work by Mr. Cheyne * has appeared, which contains such a mass of statistics on the subject that from its study even the most doubting Thomas amongst us must needs be convinced, and which should be regarded as having as much weight and importance as if Mr. Lister himself had written it, coming as it does from the pen of his trusted assistant and co-laborer. In this book the tables are so admirably arranged, and the details are so readable, that to it I would unhesitatingly refer him who desires to investigate the numerical features of the case. The work is both later and larger than that of MacCormack, and must therefore replace it. Besides these, we have the recent utterances of Volkmann,† Esmarch, Nussbaum,‡ Neudörfer § and others, which are of very great importance, and classic in their way.

Before considering applied details, it may be of advantage if we refer to the appearance and reactions of some of those minute organisms whose uninvited and unperceived presence often renders our best efforts futile. Can their presence be in any way detected, and can we distinguish between the innocent and the guilty?

It may be accepted as a general rule that their shape and size give reasonable indications as to their character. The nearer they approach the spherical or dumb-bell shape, the less injury

* *Antiseptic Surgery. Its Principles, Practice, History and Results.* By Watson Cheyne, M.B., F.R.C.S., etc. London: Smith, Elder & Co. 1882, pp. 660.

† Sammlung Klinischer Vorträge, No. 96.

‡ Leitfaden zur Antiseptischen Wundbehandlung.

§ Die Chirurgie bei Behandlung der Wunden.

they do; while the more slender and rod-shaped they are, the more danger they betoken. The case reported at the last meeting of the society shows that spherical micro-organisms may exist in the blood of patients who give no external evidence of disease, while I think no case has ever been reported where the bacterium termo has been found in the blood of healthy individuals. Careful examination will reveal the former, too, in many wound secretions which have a sour smell, though the reparative process is not apparently delayed thereby, nor the farther decomposition or blood-poisoning take place. Their reaction to staining fluids and methods of cell division also denote wide differences between the different forms. I can testify unequivocally to the existence of living spherical organisms in the freshly drawn blood of the patient whose case of tetanus was reported to you two weeks ago, having been shown them since then by Prof. Curtis, while the boy certainly appeared in excellent health. Regarding these, then, as comparatively or quite innocuous, let us devote a moment to the rod-shaped bacteria. Are they ever present in the healthy living body, and must they inevitably lead to septic decomposition when present? Beside the above statements that they have not been so found, let me direct your attention to certain experiments made by Chauveau, and give briefly his "*experience du bistournage.*"

Bistournage is performed by subcutaneously rupturing the spermatic cord by torsion. The testicle thus freed lies separated from nearly all its sources of nutrition, but is protected by its tunics from access of air, which means from access of germs. Its adhesions to the tunica vaginalis are not sufficient to nourish it, and consequently it atrophies. If the blood contain putrefactive germs, then this testicle ought to break down. This it does not do; no germs reaching it either from the blood or the air; it simply disappears by absorption. But if the germs come from without the organism, the fact can be proved as Chauveau proved it. He injected septic organisms into the vascular system of rams. After the fever, when not fatal, had subsided, he performed the *bistournage*, and putrefaction of the testicle ensued. But this was not enough. Lest some might object that the bacteria in the injected fluid were not the active agents, he carefully

filterd the liquid to remove them, and then repeated the experiment, but never got the same result. To make assurance surer, and to prove that it was not the infective fever which caused the putrefaction of the organ, he varied the experiment in this way: He injected two rams with the same fluid and same dose, and then made the *histournage* on one, with the result that putrefaction followed only in this one case. Furthermore, when he practiced the *histournage* on the left testicle before, and on the right after injection, it was the right only which putrefied.*

Here was a most ingenious proof that the admission of such germs into an organ determines its destruction. Should any one ask how, then, it happens that, when these germs can effect destruction of parts, they do not destroy life, the answer is at hand; first, we know that life frequently is lost in this way and from this cause; and second, we know how vigorously we have to combat these organisms when we succeed in saving our patient.

It will be profitable next to consider how it happens that after injection of irritating substances, such as *e. g.*, ammonia, we find septic micro-organisms in the pus thus formed. Without stopping in this place to go over the experimental ground, therefor, we are forced to believe that such germs have more or less access to the blood, via the lungs and alimentary canal, on account of their minuteness, but that the blood and tissues in a healthy state offer so poor a field for their development that they die from lack of favorable surroundings.

(No reference is made here to the special infectious diseases, each of which is supposed to have its own bacillus, though the fact that the infection does not always follow exposure can be thus best explained.) But in condition of lowered vitality, depraved nutrition, or in the presence of other diseases, the blood and tissues may become so insensibly altered that it assists, instead of preventing their growth. In actual practice we see sepsis and erysipelas occur much more frequently in the exhausted, the debilitated and the aged than in the young and healthy. No other conclusion than this satisfactorily accounts for known facts.

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* [illegible] Semmola's "De l'Infection Purulente." (Cheyne.)

Another point: The sphero-bacteria seem to be more or less inimical to the more poisonous rod-shaped bacteria; the former very rapidly exhaust the nutritive fluid in cultivating solutions and starve out the latter. It may be a most fortunate thing, then, when the former are present in the blood and wound secretions, for they may serve thus to make things unpleasant for the latter, and either prevent their appearance or hasten their disappearance.

In surgical injuries, micro-organisms may enter the lists through two different paths; through the blood, or by the wound. We take precautions against the first possibility in three ways. (1). We endeavor, as far as possible, to operate upon patients only when they are in good health. (2). When they are reduced or aged, we try to put them through a "building up process," by which we may restore to blood and tissues that unknown element vitality, that imparts this resistant power. (3). And when emergency compels us to operate upon those in unfavorable condition we try to impart this property in the speediest possible manner by administration of those remedies which are both stimulant and antizymotic, such as alcohol, quinia and the like.

As against infection of the wound surface, we have the chain of precautions known as "Listerism," a system which, when scrupulously carried out, makes the entrance or lodgment of any living germ very improbable, perhaps impossible. This system has won its way over incredulity and ridicule, and has left an impress which shall prove an historical monument, no matter what change it may undergo.

Following Mr. Lister and his disciple, Mr. Cheyne, we ought to distinguish between aseptic and antiseptic surgery. The former includes a series of measures calculated to absolutely exclude every living germ from lodgment on the wound surface or in the dressings. To this end there is probably but one known method, and that is the strictest form of Listerism. It is, of course, impossible to say to exactly what extent any of his details could be omitted, or whether any others could be substituted for them; but those who aspire to make the course of a wound perfectly aseptic had best adhere strictly to those direc-

were laid down by their author. It would take a long course of experimenting, which might be trifling with human life, before we could deviate from his plan. Besides, no one could go over the question more carefully than he has done. These details are laid down in so many perfectly accessible places that it would be superfluous for me to recount them here. Let us remember that their strict and conscientious observance constitutes our only positively aseptic surgery, and, turning our attention to the other part of the subject, consider how we can best render our operative procedures and our subsequent dressings, properly speaking, antiseptic.

Here a much wider field is opened up to us. Moreover, it makes comparatively small difference whether we positively exclude germs or cripple and destroy them when present; whereas, the latter course is the easier, and the good we can accomplish by devising simple and easily applied dressings which may be brought into extensive common use, and which shall be genuinely antiseptic, will greatly overbalance any harm that may happen in exceptional cases by omitting to resort to the complicated and expensive Lister method. In other words, we shall by the one practice save many more lives than we shall lose by not adopting the other.

When such a statement can be made as was heard at a recent congress of German surgeons, that little or nothing was now left of the original Lister system among those who were its most firm adherents, it behooves us to find out whether this is really the case, as well as to inquire why these features have been one after another dropped or changed. I propose, therefore, to speak of each of them separately, and then of their various substitutes.

And first of the spray. The cry of "Fort mit dem spray" was raised some little time ago, and we are now told that Mr. Lister himself considers it the least essential part of his system. Several causes have conspired toward its abandonment. In the first place, numerous cases of carbolic acid poisoning were reported as owing to its use. Then grave doubts arose as to it's being so effective as at first supposed. Besides this, it was not only unpleasant for the operator, but often a positive disadvantage to him. As a result of all this, the atomizer is seldom

seen in the German clinics. It is chiefly used during operations where serous membranes are exposed. In the service of Billroth, Albert, Gussenbauer, Czerny, Luecke, Nussbaum and many others, it is very seldom used during any but those just mentioned, and by no means always during those. A very frequent practice with those surgeons is to keep very large atomizers playing in the operating room for an hour or so beforehand, especially when laparatomy is to be made; but when the patient appears the machine is removed. Some of the objections to the spray may be overcome by substituting some other antiseptic for the phenol. Thymol has proved as worthy as its former reputation; salicylic acid is better; acetate of alumina has not yet had sufficient trial; oil of eucalyptus bids fair to be a success. In Paris, Pean is using peroxide of hydrogen, but the substance is very unstable, and he has no better results than many who use no spray. Altogether, the present tendency is to make the use of the spray the exception, rather than the rule.

The protective was an essential feature two years ago. Now it is much less often used. It was supposed to fulfill two indications; to protect the raw or tender surface beneath it from the rather irritating carbolized gauze, and by the presence of lead oxide in its coating to indicate when decomposition had taken place. We now find that it is not necessary to apply gauze directly to the skin, for a layer of borated cotton is better than both. Then the drainage tubes used are often made of black rubber, which contains more or less free sulphur, and this, meeting with the lead oxide, gives a false indication of decomposition. The nose of a healthy individual is a sufficiently accurate detector of putrefactive changes. The protective serves this useful purpose, however, it keeps the cotton fibers from adhering to the edges of the wound, to hairs, or ends of sutures, and thus makes change of dressings much less unpleasant to the patient; for this purpose it should be often used.

No noteworthy change has been made in the use of drainage tubes. But they should be made of red rubber instead of black, for the reason above stated; their ends should be cut off even with the surface, that they may not be occluded by pressure, and

should be held in place with a single suture through the edge of the wound.

The gauze perhaps holds its own. It is used just the same as ever. But it is in no way superior to well made boro-salicylic cotton, while the latter is much the softer. Then, too, we have finely picked and prepared oakum, tow and jute, all of which are very much cheaper than fine cotton. They may, therefore, be used over the first layer of cotton.

Cheaper substitutes for Mackintosh are now made in abundance: we have very thin rubber cloth, gutta-percha paper, waxed paper, and that prepared with paraffine; and all, save the latter, pliable and supple.

Last of all, for the outside bandages, the Germans are now using a very fine, thin sort of muslin goods, which are soaked in carbolized water just before using, and can then be snugly and easily applied. An elastic rubber bandage may occasionally be used to advantage.

All these materials we may regard as, in a measure, duplicates of the materials employed by Lister. Now, as we gradually depart from his original methods, numerous other ways and means of attaining nearly or fully his results are before us. Some of these are well worth our attention. A very important question for us to ask ourselves is this: If the spray is of doubtful utility, do we need any substitute? Probably we can accomplish as much, if not in all cases, all that is necessary by practising irrigation with carbolized water. This may be done occasionally during the operation, and should always be done just before applying the dressings. If the hands, instruments and sponges be perfectly clean and then carbolized, as well as the water in which the latter are cleansed, we need feel little fear for the result. And if the water used for irrigation be quite hot, and allowed to play in a fine stream upon the part during the operation, we shall have an efficient antiseptic and styptic both.

Of the various antiseptics the following deserve consideration to-day: thymol, potassium permanganate, aluminum acetate, zinc chloride, resorcin, salicylic acid, alcohol, glycerine, eucalyptol, boracic acid, naphthalin and iodoform.

Thymol was first brought to notice for this purpose by Volkmann and Ranke, of Halle.* At first it promised well, but it has not stood the tests and is now seldom used. Once in a while it is used in the spray during laparotomy, but the solution ought to be as strong as 1 to 250 instead of 1 to 2,000, as at one time recommended.

Potassium permanganate, in solution, serves very well for irrigation and washing out purulent cavities; but it is seldom or never employed in the spray. Its solution is excellent, too, for cleansing sponges, or for keeping them.

Aluminum acetate was introduced by Maas, who uses 2½ per cent. solution in spray, and soaks his compresses and dressings in the same. He claims that his cases follow a strictly antiseptic course, while the salt certainly is free from irritating qualities. It is deserving of further trial.

Solution of *zinc chloride* was long ago recommended by Lister for cleansing and purifying of wounds and sinuses that had become more or less foul. Recently, Kocher† has published his experience with the use of weak solutions in the clinic at Bern. He often uses them as weak as one-fifth of one per cent., and saturates his dressings with them, thus making it another substitute for carbolic acid. If one may judge from his published statistics, his results are most satisfactory.

Resorcin is a new candidate for favor. The writer has had no personal experience with it, and has hardly seen enough reports of its use to be able to speak intelligently thereof. Like many other new drugs, if all that is said of it be true, it must be of value; but manufacturers' and dealers' statements are not always reliable.

Salicylic acid has the advantage over carbolic acid that neither in strong solution nor in powder has it odor or caustic effect; its disadvantage is its slight solubility in water. It was brought into surgical use by Thiersch,‡ of Leipzig, and has been used a great deal. In the spray it is non-irritating to raw surfaces and serous membranes, and is not infrequently employed. In

* Volkmann's, Samml., Klin. Vort., No. 128.

† Volkmann's, Samml., Klin. Vort., No. 203–4, 1881.

‡ Volkmann's, Samml., Klin. Vort., No. 84–5.

Langenbeck's clinic a reservoir of it was always at hand for this purpose. Volkmann has showed that in those cases which I have already referred to where the discharges have a sour odor, and sphæro-organisms are found under the microscope, the use of this acid checks all mischief and odor. Lister makes a cream or ointment of this acid to apply around the edge of other dressings where irritation has been set up. It may be used to advantage in solution for irrigation where carbolic acid is irritating or obnoxious, and dusted dry on ulcerated surfaces, where it dries into the crust and forms a perfect protection from the air.

Alcohol is a most efficient antiseptic; the name of the individual who introduced it having been lost in the dawn of history. As a stimulant injection, more or less dilute, its use is familiar to all. It is desirable here to lay stress on the fact which Hack* has demonstrated, that granulations treated by alcohol absorb very little, if at all, while those treated by carbolic acid absorb easily. The practical importance of this fact is very great.

Glycerine has, in the writer's opinion, been too much neglected. Introduced for this purpose by Demarquay, in 1855, it was first tried in hospital gangrene, and then in all wounds. He esteemed it and praised it most highly.† I have used it considerably in preserving anatomical specimens and in embalming, and I have usually found that the more severe the test the more satisfactory the result. I had for some time been using carbolized glycerine as a substitute for carbolized oil, it being much more cleanly, and miscible with the water used in washing or irrigating, when I met with articles on the subject by Griffin‡ and others. They advocated its use in major operations, such as severe amputations, etc., claiming that they thus got union by first intention just as when they used the Lister dressing. It has this great advantage that it does not evaporate, and that when mixed with a due proportion of carbolic acid, or alcohol,

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* "Ueber die Resorptionsvorgänge granulirender Flächen." Leipzig, 1873.

† [illegible]

‡ [illegible]

or iodoform, dressings saturated with it must be either impermeable to the air, or must act as antiseptic filters.

I now thus use it a good deal as a dressing for lesser amputations, lacerated or contused wounds, plastic operations, and the like. I saturate soft canton flannel, or surgeon's lint, or absorbent cotton, with it, apply two to six layers, and then put some gutta-percha paper over it, or not, as the case may seem to require, and over all this the usual bandages. With this dressing I have had no bad result, but as complete union by first intention as I ever saw. I can't help venturing the statement, therefore, that the more anatomists and surgeons use glycerin the better they will like it.

Preparations from the eucalyptus, especially the oil, are gradually working themselves into favor. Schulz, of Bonn, urges their adoption.* Baucholtz and Siegen have proved their antiseptic properties. They also hinder the emigration of white blood corpuscles, and can thereby influence suppuration.

Schulz directs that for the spray the glass reservoir of the atomizer should be filled with an alcoholic solution of the oil which the steam could take up and emulsify. Its odor and expense serve to tell against it. A ten per cent. solution of the oil may be used, as I have just recommended, with glycerine. It may also be used in the preparation of gauze. Lister's own experiments with it have proved, according to Cheyne,† very encouraging. It may prove a substitute for carbolic acid under all circumstances. Its non-poisonous and anti-malarial properties should be greatly in its favor.

Boracic acid is too sparingly soluble to be of much service save where it may be applied in dry powder, but in such cases it hardly has a superior. Its crystals are difficult to pulverize, but this difficulty may be overcome by trituration with a few drops of alcohol. It may then be dusted from a pepper-box or blown through a blower. Cavities that are to heal by granulation may be filled with it. Thus used after excisions, sequestrotomies, removal of projectiles, etc., it offers the safest means of preventing sepsis. For such purposes its only rival is iodoform, and it has

* Centralblatt für Chirurgie, Jan. 24, 1880.

† Loc. cit. p. 141.

this great advantage, that it is odorless, and that boracic acid poisoning is almost unheard of.* Lint and cotton may be steeped in hot saturated solution, after cooling and drying the fine crystals are deposited in the meshes of the fibre. Still better is the result if salicylic acid be added. Absorbent cotton thus prepared is equal to the best Lister gauze. Boracic acid is not yet used nearly as much as it ought to be. It has very similar advantages to iodoform without its odor. It certainly stimulates healthy granulations. For my own part, I like it better and better as I use it more and more.

Napthalin, I imagine, has not yet been tried this side of the ocean. Discovered by Garden in 1820, recently introduced by Luecke, of Strasburg, and described by Fisher,† it is a very cheap and efficient "antibacteriticum." It is a "coal-tar product," and has the chemical formula, C.10, H.8. Like boracic acid, it is with difficulty reduced to fine powder, but may be used in just the same way and with the same results. Its advantages over everything yet mentioned in this paper is its cheapness. It is a white crystalline body, melting at 79° C., insoluble in water, but easily soluble in four parts of ether. Gauze may be impregnated with a mixture of this solution, with three parts of alcohol. This gauze will cost one-fifteenth as much as iodoform gauze. Napthalin is easily miscible with unguents and may thus serve in many parasitic and other skin diseases. (Kleinhaus, Simon.) I saw Luecke using gauze which had been treated with the drug reduced to as fine powder as possible, and simply rubbed into its meshes, just as plaster of Paris bandages are made. With this he was dressing all his cases. Fischer relates cases where the use of napthalin locally has suddenly checked erysipelatous processes. It can be used in any and all ways. I shall soon begin using it myself, and hope to see it generally tried.

Lastly, we have *iodoform*. So much has been of late written‡ about this substance that I need not devote much time to it;

*In the St. Petersburg Vratsch, No. 31, 1881, two cases are reported.

† Berlin. Klin, Wochenschr., Nov. 28, 1881; and Centralblatt für Chirurgie, Beilage, No. 29, 1882.

‡ Langenbeck's Archiv. XXVII, p. 196 Wiener Med. Woch., Nos. 13 and 23, 1881. Weiner Klinik, Jan. 1882. Volkmann's Samml, Klin. Vort. No. 211. Vide also Annals of Anat. and Surg., March and July, 1882.

German current literature contains very frequent allusions to it. When we realize that the iodoform dressing is used most extensively all over Germany we must feel that its merits are very great. As an antiseptic it is regarded equal to carbolic acid, and it is perhaps less liable to cause constitutional disturbance. Still, symptoms of poisoning are now and then observed. Iodoform is absorbed in small quantity, and must accordingly be eliminated in some way. This elimination takes place through the kidneys. Moosetig-Moorhof, who introduced it, claims that this free elimination is prevented by the carbolic acid used during operations, since it irritates these emunctories; he, therefore, uses only clear water for irrigation, instruments and sponges. Without being prepared to pass judgment on his views. I can only say that they do not seem to be shared by those surgeons who, besides himself, most use it.

The introduction of iodoform has certainly advanced the possibilities of surgery. The great danger formerly after such operations, as extirpation of the larynx, thyroid or rectum, excision of the tongue, and the like, was from purulent infection, because by the very nature of the cases a strictly antiseptic dressing was impossible. Now, by the use of this same drug they are made practicable and even safe. I have seen Billroth stuff a tent of iodoform gauze into the peritoneal cavity after extirpation of the uterus per vaginam, and, leaving it there, tampon the vagina with the same,—the patient recovering without a drawback. After operations about the mouth, the wound is stuffed with this gauze, which is changed only after two or three days. After laparotomy, iodoform is sprinkled into the abdominal cavity without hesitation. In a similar manner it is employed after plastic and osteoplastic operations. The various opportunities for its use in syphilitic and skin diseases can only be hinted at here.

In spite of these advantages, it has some bitter enemies, but it is steadily gaining ground. In the writer's humble opinion it is *the* antiseptic, for surgical purposes, of the immediate future. It will find its largest field, perhaps, in cases of tuberculous joints, sinuses and ulcers. Indeed, its friends claim for it positively and specifically anti-tuberculous effects. This matter should be regarded as still *sub judice*.

The only serious charge which can be brought against it is that under its use erysipelas happens more frequently than when the Lister gauze is used. Reports indicate that this is rarely the case; and yet it happens so very seldom that iodoform can still hold its own against competitors.

Iodoform gauze may be prepared in two ways. The powdered drug may be sprinkled over the proper material and rubbed in. Or, better, 60 grammes of resin are dissolved in 1200 gr. of alcohol, and 50 gr. of glycerine added; into this fluid 6 meters of gauze are placed, and then wrung out; when half dried it is dusted with 50 gr. of powdered iodoform.

Concerning the quantity of drug that it may be considered safe to use, those who most use it have set the limit of absolute safety at 10 grammes, yet much more may be tolerated, though seldom required. Indeed, Gussenbauer* poured 240 grammes (nearly eight ounces) into the cavity left after resection of the ankle, and no poisoning resulted.

Its penetrating, tell-tale odor can be partially disguised by balsam of Peru, eucalyptus oil, and various other liquids and solids.

Space fails to more than mention peat or black earth, corrosive sublimate*, terebene, sanitas, the various balsamic preparations, chloral, oil of mustard, and other aromatics, chinolin, iodine and many other drugs and chemicals that have at different times been recommended. They probably all have certain good points, but it is, to say the least, doubtful whether any of them can be compared to those which I have spoken of at some length.

Neither is this the appropriate place to discuss the relative merits of silk, cat gut, chromic gut, silkworm gut, nor ox-aorta ligatures, nor of those of deer or kangaroo tendons, or the like. No particularly new method of rendering any of them antiseptic has been lately presented, and it is with precautions against sepsis alone that this paper deals. The same remark applied to bone and other drainage tubes.

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* Personal communication.

† These two recommended respectively by Neuber and Kümmel, Centralblatt für Chirurgie, Beilage No. 29, 1882.

I am fully aware that I have really only introduced the subject of this report; but the inestimable importance attaching to everything calculated to deprive surgery of the horrors of blood poisoning must be my excuse for having detained you so long.

1558 Wabash Avenue.

ARTICLE II.

THE YELLOW OXIDE OF MERCURY.

By W. W. SEELY, M. A., M. D., Professor of Ophthalmology and Otology in the Medical College of Ohio.

For quite a number of years all oculists and a large proportion of the general profession have been aware of my advocacy of the abandonment of the ordinary astringent-caustic treatment of all conjunctival troubles. I am quite correctly represented (so far as it goes) by the author of an article in a recent number of your journal* on "The Yellow Oxide of Mercury in Ophthalmic Practice," as substituting for astringents and caustics the yellow oxide and vaseline. And I have repeatedly stated that my satisfaction in treating conjunctival affections dates from this period. Except in a journal devoted to general medicines it would be quite superfluous to state that the introduction of the impalpable powder, the yellow oxide of mercury belongs to Pagenstecher; the ointment made with it, however, was usually very strong, 20 to 60 grains to the ounce (of lard) and its use almost restricted to the late stages of corneal affections. Its use in this country had (till my advocacy) been very limited. My devise of vaseline as a vehicle for it along with the recommendation of weaker preparations (8 to 10 grains to the ounce) as well as its use in the first stages of corneal affections, and all forms of conjunctival inflammations, have quite put a new life into it. All I claim (and I am supported in the claim by the priority of my articles) is the use of vaseline as a vehicle, weaker preparations, its use in corneal troubles from their inception, not waiting for a subsidence of the inflammation; its adaptation to conjunctival affections.

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* Hotz, May, 1882, vol. xliv, No. 5.

Some two years or more, after I had made known this "adaptation," Mr. Baden, Guy's hospital, London, discovered the virtues of the yellow oxide and vaseline in conjunctival troubles, thinking it was new and original, though a glance at the current literature would have shown that it had already been advocated and reported upon by myself.

(See reply of the editor of *Centralblatt für Prakt, Augenheilk'd* to Dr. (now Prof.) Fuchs, in regard to vaseline as a vehicle, etc.)

Each year's experience had added support to my views first enunciated on the non-astringent caustic treatment of conjunctival affections.

The author (Hotz) of the article above alluded to, seems to think my "cure-all" claim extreme, but even if it were a proper statement of my position there is nothing very peculiar in it. A reference to Dr. Wilson's (Bridgeport, Conn.) report will show the position taken in routine practice by the adherents to the old astringent-caustic plan. This one uses nitrate of silver, that one sulphate of copper, another tannin, etc., or changes are rung on two or three astringents. I reply that I never use astringents under any circumstances, my "routine" being yellow oxide of mercury and vaseline. Wherein does my practice differ from that of others? Undoubtedly only in this, that my conjunctival remedy found its first field in, and is regarded as belonging to, corneal affections. I simply substitute the yellow salve for astringents, claiming that astringents may be, and should be, abandoned *in toto*.

I am quite aware of the revolutionary character of my position, but it is receiving support continually, and will be established. There is no man bold enough to claim that the astringent-caustic plan is a success. Any plan equally successful, but freed from the disadvantages of the old one is a gain. So far no one has claimed that the yellow oxide is not equal in efficiency to astringents and caustics. That it is free from these drawbacks needs no argument, when I state that, properly prepared, the salve causes no pain or inconvenience. But my non-astringent caustic plan embraces more than the use of the yellow oxide. I do not regard the yellow oxide in the light of "a powerful local

stimulant and alterative, promoting the absorption of the products of inflammation and encouraging the process of repair." (Hotz.) Certainly not in the language quoted.

Now, whoever advocated this remedy under the above language may be, and I am not quite pursuaded he is not, claiming something for it that it does not possess, at least not beyond many other substances. I have no doubt the author of the language quoted does not differ from many others, when he uses it as a "stimulant and alterative." Further, I have no doubt that herein lies his unwillingness to "follow the example of a recent writer."

I am not at all pursuaded the yellow oxide surpasses other substances as an irritant and absorbant. It may possess their attributes, mysterious as may be the use of them, but when I put it on a violently inflammed conjunctiva I certainly do not have in view the production of irritation and absorption. Omitting any special theories of inflammation, an apparently important desideratum is the contraction of blood vessels. I do not think I am wrong when I state that the yellow oxide does bring about contraction of the blood vessels in the pathological state in question. I have seen the sclera become so pale and such dryness produced that I have discontinued its use for the time.

We all know that the astringents contract blood-vessels, but along with the knowledge of that fact goes the knowledge of the other, that the primary contraction is likely to be minimum, the reaction (or dilatation) maximum. Who has learned the secret of reversing the above reaction? We have all been brought up in the same latitudinarian school, teaching "salutary reaction," "increased circulation," "carrying off of the morbid products, etc., etc.

The absolute necessity for nitrate of silver in purulent states of the conjunctiva has been almost as fixed as existence itself, and I thoroughly recognize the shock produced by a flat denial supported incontrovertably by clinical experience, and now the latter backed up by mycology.

In my therapeutic investigations the purulent state was the last in which I abandoned the astringent-caustic treatment, while it should have been the first.

Sometime after my hardihood in asserting that purulency did not demand astringents and caustics. Professor Becker. of Heidelberg. went a step further and claimed that only cleanliness was needed. It can then, I believe, be considered demonstrated that purulency does not require astringents and caustics. If I am not mistaken we have been in the habit of regarding the purulent state as really but a grade higher in the inflammatory list than a catarrhal. Taking then but the logic of all the books, and only that logic, and where does it lead us? It is so clear "the wayfaring man though a fool need not err therein." Trachomatous conjunctivitis consists in the formation of new growths in and at the expense of the pre-existing conjunctival elements, a process accompanied by more or less catarrhal conjunctivitis, and it is now rendered quite probable that even the trachomatous bodies are due to a parasite (the trachoma coccus of Prof. Huburt Sattler, of Erlangen). It follows if the chief of conjunctival inflammations (laying aside now any causes) does not require astringents, caustics, why should the minor forms? My clinical studies antedated the birth of medical mycology proper. In brief, I accidentally discovered in treating the corneal complications of trachoma, that the lid trouble likewise subsided in a remarkable manner under the yellow oxide, from which I was finally led to abandon the usual remedies. By inference I passed to other forms with of course more striking results, since this element of self-limitation is more marked. I may then state my position as follows: Absolute clinical conviction, subsequently my theory resting on deductions from mycology, and lastly the scientific basis as laid by investigations from various sources and recognized, I fancy, by all. I venture to claim that no part of either general or ocular therapeutics rests on a more solid foundation.

The old salves and collyria of the bi-chloride of mercury were ahead of their age, for it is only modern science that has taught us why they are efficient, by showing that it only requires one part of the bi-chloride to 20,000 of water to kill the vegetable growths of ordinary decomposition. My rationale of the action of the yellow oxide has been that in the presence of the sodium chloride furnished by the tears, a certain amount of bi choride is

formed. Whether this is correct or not the experiments I am now making will determine, as they will also I think, the influence of the yellow oxide on the parasites of the various conjunctival secretions. I have assumed that in the remedy advocated I had a powerful parasiticide, as I know I had a contractor of blood vessels, which two actions I have claimed as proper for a remedy in conjuntival inflammations.

As I have so frequently stated in other places, I believe Professor Leber gave the only rational explanation of the action of astringents when he said it is parasiticidal. Now all investigations go to show that these materials stand quite at the bottom of the list in checking the growths of ordinary decomposition. (See table in Real Encyclopœdic.)

To carry out my ideas in full necessitates one more revolution. For nearly two decades atropine has been the adjuvant of the astringent-caustic treatment, especially in the more important forms of conjunctival inflammation, such as the trachomatous and the purulent. All investigations prove that the effect of atropia is dilatation of blood vessels from paralysis of the muscle wall. Now if inflammation is really little more than exaggerated nutrition, the blood-vessels are enlarged, even new ones are formed, and the problem is to contract and obliterate them, which cannot be done by a paralysis of thin walls. The same thing holds true in non-vascular structures, since the hypernutrition is here represented by both an increased lymph supply, and the blood (in some cases) of new formed vessels. It is claimed by very high authority that the lymph vessels are directly connected with the blood-vessels, at any rate their circulation stands in close relation to that of the blood.

In the case of the cornea, every one knows the first phenomenon of an inflammation of this structure is an accumulation of leucocytes; further on a consequent crowding together, strangulation, even necrosis of the tissue. The problem here too is precisely the same, to check the supply. This of course is not the only problem, but the first. Now corneal complications represent the sole "mode of death" in conjunctival inflammations. I may be pardoned then for my conclusion, other things being

equal, for resorting to the same general principle in the management of inflammation of these two structures.

For a series of years I have resorted more and more exclusively to the use of the myotics which contract blood-vessels, such as eserin, in corneal affections, instead of mydriatics, such as atropine, and with constantly increasing satisfaction.

Now, if I carry out the principles I am compelled, if I use one or the other, to resort to a myotic (such as eserin) in conjunctival affections. From the present stand-point then of our knowledge I feel justified in insisting upon the principles I have laid down, besides my clinical experience so far has added, for me, the demonstration of this truth. As will have been seen, my chief object has been to enunciate certain foundation principles, using given remedies as my text. I am far in reality from believing that anything like perfection has been reached, but I do believe that the steps taken, while out of the beaten path, will help form a new one far plainer and better.

ARTICLE III.

SUMMARY OF MONTHLY REPORTS OF THE MEDICAL DEPARTMENT OF THE SOUTHERN ILLINOIS PENITENTIARY, CHESTER, ILL. For the year commencing August 1, 1881, and ending July 31, 1882. By H. Z. GILL, A.M., M.D., Physician to Southern Penitentiary.

Having no "idle house" connected with the institution, when men are not able for light duty, from sickness or debility, they are reported in hospital or in *sick cell;* and many are in hospital who would otherwise be in a convalescent ward or idle house, if there were such a place. Hence the report of days lost in hospital and in sick cell is much larger at times than it otherwise would be.

At the time of changing the location and building occupied as hospital (about May 20), the culinary department of the hospital was discontinued and the provisions supplied from the general

officers'. kitchen. About the beginning of the year, the number attending morning sick-call somewhat increased, as the number of convicts increased; and, also, there was more care in recording all who came to the call, whether they received any important treatment or not. About that time there were other but temporary causes for the increase. During the early months of the year there was a considerable amount of diarrhœa, dependent upon a combination of causes; partly from the diet, and partly from the water, the river at the time being very high. After commencing the use of cistern-water, and using less fresh meat and more vegetables, the difficulty diminished; but the disturbances of the bowels, with the necessarily routine diet, will always be a trouble to be met, especially in the class of men here found.

The cases of intermittent fever (single attacks numbering some hundreds, many of them not taken into hospital) were generally easily controlled with alkaline aperients, and the antiperiodic cinchonidia sulphate. The remittent, malarial and continued forms of fever were of moderate severity. The cases of typhoid fever, eight in number, were mostly well defined, and the majority quite severe. The three commencing in April were especially marked in the nervous element of the cases. They were quite delirious, two of them sleepless and noisy for several nights, but these two recovered, one of them after suffering a perforation of the membrana tympani. From this latter trouble, however, he ultimately entirely recovered, with restoration of normal hearing. The third patient of this group was extremely nervous and trembling. Prostration was early quite marked, and a lung complication carried him off on the fourteenth day in hospital. Our management of typhoid cases (none but well-defined cases have been so designated) has been to keep a careful register of the temperature, pulse and respiration; and to diminish the high temperature by frequent bathing or sponging; moderate the diarrhœa, if any existed, by turpentine emulsion and tinct. opii, and by external applications over the bowels, of lard and turpentine with moist heat in cases of much tenderness; keep up the action of the kidneys with a mild

alkaline diuretic; and give a supporting diet, of milk principally, frequently administered. Stimulants were not given at all in the earlier stages of the disease, and seldom in the latter. In cases of pulmonary complications the treatment was adapted to the general indications—turpentine applications, covered with flannel wrung out of hot water. One case had, near the close of the disease, suppuration of the left parotid gland. Patient was a young man of delicate constitution, light complexion and red hair. This is the third case of the kind I have had in my own practice, all of whom, however, recovered, notwithstanding it is regarded as a rare complication. See Trousseau, also Da Costa.

The case of tuberculosis, complicated with hydrothorax, was a colored boy twenty years of age. He had had a severe and prolonged attack of pheumonia about one year before, but had recovered sufficiently to do work most of the summer. He entered hospital December 23. By January 1, respiration became exceeding difficult. With the aspirator I drew off twenty-three ounces of fluid from the right pleural cavity, which afforded him great relief, though of temporary duration. On the 4th of February the pressure from accumulation of fluid became so great as to demand relief, and I drew off fifty-five ounces. The operation was repeated, at intervals of from five to eight days, until March 1. The fluid drawn was bloody serum of 1018 to 1022 sp. gravity. Under the microscope the blood-corpuscles appeared crenated, and evidently many of them disintegrating. The entire quantity drawn was two hundred and forty ounces. The pulse ranged from 90 to 120, except occasionally and during the last few days, when it ran higher.

The post-mortem revealed the right pleural cavity filled with reddish serum; the lung was contracted to the size of a fist, and containing many tubercular masses; some adhesions were stretching across the chest wall. The left cavity also contained considerable serum, as did also the abdominal cavity; and the lung was filled with tubercles. It is easy to see how, by means of these adhesions, exploratory tapping with the hypodermic syringe might have failed to reach the fluid in the thoracic cavity. Tuberculosis, rapid in its course, was the incurable principle of his

illness; and hydrothorax the incidental, for which thoracentesis gave great but only temporary relief.

The other case of acute tuberculosis (Frank Kennedy) was very rapid in its course. One marked feature of the early history of the case was a wide deviation from the normal pulse-respiration ratio. On being transferred to the hospital from the sick-cell, I found his pulse varying from 100 to 110; and yet the respiration was from 40 to 50, and even at some times as high as 60. Expectoration was very slight. Treatment seemed to be of no benefit.

Post-mortem revealed both lungs literally crowded with tubercles, from the size of a pin head to half the size of a pea. This condition of the lung explains the clinical symptom of rapid respiration, and suffering from a "want of breath," which was at times very distressing.

Charles Moseley, colored, died July 21, 1882, at 11:50 A. M. Autopsy three and a half hours after death. Body well nourished. Rigor mortis scarcely perceptible: large scar on right wrist; large perpendicular scar on the chest, four inches long, above the left nipple. Blister eight inches in diameter over the region of the stomach.

An incision was carried from the upper border of the sternum to the symphysis pubis. The blood which escaped from the incised vessels was extremely watery. Ecchymosis existed on the under side of the rectus muscles of the abdomen, about two and a half inches in diameter, and situated two inches above the umbilicus. The lungs, collapsed, were free, and contained very little blood, except the base of the left, which was very dark, and contained considerable very dark blood; but a piece of it floated in water. It seems to be the result of hypostasis. The left side of the heart was contracted, but was entirely empty; the right side was flabby (did not open it). The liver was large (did not weigh it), and filled with very dark, thick blood. On section it was of a lighter yellow than normal, in parts quite decided well marked in this respect—fatty degeneration. The pancreas was very large, but did not seem to be otherwise abnormal, except rather dense. Weight, 6½ ounces. The kidneys

were large and the right had ecchymosed spots on and in the cortical portion. It was of a yellowish white color, and bore the appearance of acute fatty degeneration. The left bore the same marks, but in less degree. The bladder was partially filled with urine which, on examination, proved to contain albumen ¾. The stomach was much contracted, and contained a dark greenish fluid. The mucous membrane was much tumefied, but no ulceration was perceptible.

I have given the *post-mortem* before the clinical history because in the former we finally based the diagnosis.

Clinical history: On the night of the 6th and 7th of July (about midnight) he was visited: he had been vomiting freely, as he said and as the condition of his cell indicated. A prominent and persistent symptom was nausea and frequent vomiting—at intervals of a half hour to four or five hours. Nothing seemed capable of allaying it for any length of time. The ejected matter was of a dark-green color, mixed with whatever he may have taken to eat—milk once or twice. He spat blood at times. It would seem to accumulate in the back part of the mouth, and he would spit it out without any effort at vomiting. About the time he came into hospital, for a day or two, it would come pretty freely with slight effort at vomiting; but, in smaller quantities, it would be as likely to come after vomiting. Another symptom of unusual character, in relation to other conditions, was the absence of fever during the entire course of the attack, except a very few hours before death.

Also, we may mention the slow, regular pulse, not exceeding 60 during the entire time except during the last few hours. I was fully persuaded that it was a case of poisoning of some kind, and the only poisons occurring to me as accessible to him were corrosive sublimate, concentrated lye and fish-berries (*anamirta cocculus*). The symptoms, however, did not correspond to any of them, and the delay in manifestation obscured the case. The explanation did not occur to me until the *post mortem*. The convicts were allowed matches; but he being in the female department to help cook and make fires, had access to matches

constantly. It will be seen that nearly all the *post-mortem* appearances were those of phosphorus poisoning. The duration of the case is rather unusual, though others are on record of even greater duration, and yet fatal. His previous health had been perfect, and he was in every way stout. He was always of a reticent character; and during his illness it was with the greatest reluctance that he would say anything about his case. He was serving a second term.

Summary of Monthly Reports of the Medical Department of the Southern Illinois Penitentiary, Chester, Illinois, for the year commencing August 1, 1881, and ending July 31, 1882. Services of H. Z. GILL, M. D., Physician to Southern Illinois Penitentiary.

The number of convicts increased, during the year from August, 1881, to July, 1882, inclusive, from an average of 356.5 to 513, giving an average for the year of 436. The health was generally good. The rate of mortality per annum for 1,000 men, was 27.5; and deducting the case of poisoning (suicide), 25.23. New York gave, 1881, 31.7.

The loss of time last summer was much greater than during this summer, it being then much hotter. Lost time, July, 1881, 710.75; number convicts, 354; per cent., 7.72. Lost time, July, 1882, 346.75; number convicts, 513; per cent., 2.6.

The cases, Nos. 8, 9, 10, 11, are the only ones that can be properly classed as among diseases measurably under the influence of treatment. No. 1 was thoroughly poisoned, and his health broken down by long confinement in jail before coming to this institution. See below farther description of the individual cases.

[SEE NEXT PAGE FOR TABLES.]

SUMMARY OF MONTHLY REPORTS.

MONTHS	AUGUST.	SEPT'R.	OCT'R.	NOV'R.
Average number convicts	356.5	354	347.7	357.7
Mean monthly temperature (this is approx. correct)	83	76.7	62 5	43
Average number attending daily sick call	38	30.6	17.8	14.6
Average number in hospital	10.8	10	7.1	6.3
Average number in sick cell	4.4	3	2.6	2
Working days lost from sickness—				
1. In hospital	293	261	184.5	165
2. In sick cell	128.5	76.6	70.3	54
Total lost time	421.5	337.6	254.8	219
Deaths	1	1		
Sent to insane asylum	1			
Antiperiodics used	$25.60	$18.00	$12.40	$12.40
Number men fed by medical department—				
1. In hospital		307.5	317	253
2. In cell house		107.5	112	122
Total		415	429	375
Gallons of milk issued to sick		55	90	85
DISEASES—1. MEDICAL.				
Intermittent fever	17	4	3	1
Remittent fever		2	5	3
Continued fever				2
Malarial fever	1			
Typho malarial fever			1	1
Typhoid fever				
Diphtheria				
Pneumonia				
Diarrhœa, acute	2	2		2
" chronic	1		1	
Bright's disease, acute				
" chronic	1			
Rheumatism	4	3		2
Epilepsy				
Consumption				1
Jaundice				
2. SURGICAL.				
Hæmorrhoids		3	2	3
Fistula in ano		1	1	
Sprains	1			
Fractures				
Injuries and contusions	1	3		1
Floating cartilage in knee joint				
SURGICAL OPERATIONS.				
Removal of right eye		1		
" tumor from face			1	
Hæmorrhoids		3	2	3
Fistula in ano		1	1	
" lachrymal				
Paracentesis, abdominal		1	2	
" thoracis				
Operations on eye-lids		1		
Palmar abscess				
Fracture in elbow				
" of right leg				
" of clavicle				
Strangulated hernia, inguinal				
Bubo (syphilitic)				
Removal of bullets				
" of floating cartilage from knee joint				
Amputation of toe				

SUMMARY OF MONTHLY REPORTS—*Concluded.*

DEC'R.	JAN'Y.	FEB'Y.	MARCH.	APRIL.	MAY.	JUNE.	JULY.	Total or Av'ge.
382	389	383.7	419	449.6	476.3	504.2	513	436
40	37.6	49.1	48.2	59.3	65.8	79.5	79.7	.....
16.3	27	32.5	24.6	30	25.5	23	20.5	.....
9.3	10.2	6.5	6.9	7.8	8.2	8.2	8.1	.....
3.5	5.3	3.5	2.1	6	7.6	4.3	5.2	.....
251	262	151.5	186	195	220	214	211	.....
94.6	136.6	83.5	59	149	206.5	110.6	135.6	.....
354.6	398.6	235	245	344	426.5	324.6	346.6	.....
1	1	.....	3	1	1	1	2	12
.....	.....	1	.....	.....	.....	.....	.....	.....
$12.40	$9.70	$13.10	$15.50	$7.50	$11.80	$6.00	$7.45	.....
444	444	292	338	353	356	311	306	.....
241	253	288	297	346	381	396	382	.....
685	697	580	635	699	7 7	707	688	.....
101	112	112	123	128	98.5	.....	.....	.....
2	2	3	10	8	4	4	4	.....
3	2	5	3	4	3	1	.....	.....
.....	.....	.....	.....	2	1	2	.....	.....
.....	.....	1	.....	.....	1	.....	.....	.....
.....	2	.....	.....	.....	.....	.....	.....	.....
2	2	.....	.....	3	.....	.....	1	8
.....	.....	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	1	.....	2	1	.....	.....
1	1	.....	3	.....	1	1	2	.....
1	.....	.....	5	2	.....	1	3	.....
1	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
3	.....	1	.....	1	26	5	1	.....
.....	2	.....	.....	.....	1	.....	.....	.....
1	.....	1	.....	.....	.....	.....	.....	.....
.....	.....	1	.....	1	.....	.....	1	.....
6	3	1	.....	.....	.....	.....	1	.....
.....	.....	.....	.....	.....	.....	1	.....	.....
.....	.....	.....	.....	.....	.....	1	1	.....
1	1	.....	1	.....	.....	.....	.....	.....
.....	1	.....	1	.....	.....	1	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.. ..	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
6	3	1	.....	.....	.....	.....	1	20
.....	.....	.....	.....	.....	.....	1	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	4	1	.....	.....	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	1	.....	.....	.....	.....	.....
.....	1	.....	1	1	.....	.....	.....	.....
.....	1	.....	1	.....	.....	.....	.....	.....
1	.....	.....	.....	.....	.....	.....	.....	.....
.....	1	.....	.....	.....	1	.....	.....	.....
.....	.....	.....	1	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	1	.....

ARTICLE IV.

RUPTURE OF LEFT KIDNEY. Report of a Case, with Autopsy.

By R. N. ISHAM, M.D.

July 15, 11:30 A. M., Ed. Rillen, while at work on a locomotive, slipped and fell from the gangway through a clear space of four feet, striking upon his left side across a wooden horse. I saw him at 2 P. M., nearly three hours afterward, and found him in a condition bordering upon collapse, as if from internal hæmorrhage. Countenance pallid; expression anxious; pain referred to the region of the diaphragm; surface of the body covered with a cold perspiration, and pulse hardly perceptible at the wrist. No visible sign of injury on inspection. Percussion gave an area of dullness in the right hypochondriac region, over a larger extent of territory than natural, and on drawing off the urine, it presented characteristic appearance of hæmatine, being of a smoky brownish color. Reaction was accomplished in a few hours, and without any continuance of the hæmaturia. The case progressed favorably for five days, till convalescence was apparently fairly established. During that interval of quiet there was but little pain, no febrile excitement, no disturbance of the stomach, and no sign of peritoneal injury.

On the morning of the ninth day, after a movement of the bowels and considerable exercise on the preceding day, he was suddenly seized with the most violent paroxysms of pain, accompanied by loud cries, and referred to the lower portion of the abdomen and cord. I found him again presenting signs of collapse, with incessant vomiting of a greenish fluid, and supporting the scrotum; he was positive of a rupture. Chloroform was administered, and the examination made of the patient showed an infiltration or dissection of the infundibuliform process with blood, reaching to the scrotum or tunica vaginalis. Considerable fullness in the left hypochondriac and lumbar region, could be recognized by palpation and percussion.

From this time, during the following days, the symptoms were those of peritonitis, at first circumscribed, then general; a

thready, quick pulse and heightened temperature until the morning of the 20th, when he suddenly expired, having only a few hours previously expressed himself as much improved and feeling better.

Recognizing the character of the injury as laceration of the kidney on my first visit, I believed that a recurrence of the hæmorrhage had taken place on the occasion of the relapse of the symptoms; and, on the afternoon of the 19th, I made a tentative exploration of the left lumbar region with a small needle and syringe, and found that I was able to evacuate liquid blood, but using an aspirator with a larger needle, I was only able to withdraw about four oz. of blood, with fragments of clots, which satisfied me that the effusion was coagulated. I had refrained from any operative interference, because the attendants had noticed a fæcal odor to the vomited matters (as they supposed), and the persistent vomiting after the relapse suggested to me the probability of a contused, strictured and gangrenous intestine.

Autopsy July 20, 3 P. M. Body five feet eight inches in height, weighed 136 pounds. No mark or discoloration on the body. Abdominal section showed the intestine moderately distended by gas, and discolored through the mesentery by sanguineous injection It presented no other lesion, and, after its removal, a large distended, circumscribed collection of blood was discovered in the right lumbar region. Behind the peritoneum there was a collection of six to ten oz. of sero-purulent fluid. This collection of blood was dark-colored, coagulated, and contained several concentric layers of partially organized fibrinous clots, as is represented by aneurismal sacs. In this was found the remnants of the kidney, as I now show you, absolutely rent and smashed in three parts, and two-thirds of it disintegrated and almost unrecognizable, except its capsule—so intimately blended was it with the coagula by dissection of the hæmorrhage. There were evidences of gangrene progressing in the peritoneum and subperitoneal tissues, extending to the pelvic cavity and over the bladder.

There was a singular absence in this case of the sign of ruptured kidney so generally spoken of—that of a frequent desire to void the urine, which can only be explained by reason of the most complete destruction of the gland by the injury, and the

complete isolation of it by the effused blood during the first few days after the reception of the injury.

The most reliable sign of laceration of the kidney, taken in connection with the external symptoms, is that of the hæmaturia; but in some cases this may not be present or may not be recognized. Thus, Erichsen mentions a case where the kidney was completely smashed, as in this one, without any appearance of this sign, no bloody urine having found its way into the bladder; still, the recurrence of this sign, in connection with an injury competent to rupture this organ, may be assumed to be pathognomonic, and its appearance should always be looked for as an aid in the diagnosis of lumbar injuries of severity—even to the resort, if necessary, to catheterization. In this case, there was enough urine secreted by the mutilated remains of the kidney to cause gangrene and sero-purulent effusion.

Laceration of the kidney is a regularly fatal accident, and chiefly due to the extravasation of urine which occurs when the capsule is torn. Of sixteen cases collected by myself, but one recovery took place, and in this instance, a case of gun-shot injury, a bit of clothing was wedged in the gland, and came away after many months. During this time more or less urine escaped through the fistula. The wound healed at once. The foreign body escaped. The other cases were free from hæmorrhage, gangrene and suppuration, and death occurred in six to fourteen days.

I am convinced that in these cases a provision should be made for drainage, and in cases of destructive laceration, as would be indicated by excessive hæmorrhage, removal of the entire remnant of the gland be performed. The case of recovery just cited shows the good effects of a provision for drainage, and this which I have reported fully establishes the fact that if the mutilated organ had been removed, the patient might have recovered; or, at least, the only chance of recovery would have been offered to him by so doing.

The first case of removal for injury, I find was by Bremdt (Vienna) in 1873; that of a young man stabbed with a knife, operated upon four days after the injury, followed by recovery. Inasmuch as this operation—removal of one kidney—presuming

the remaining one to be sound, is very successful; that the approach to the kidney is safe and easy; that in exploratory incisions the peritoneal sac need not be disturbed, I am further convinced that this procedure should be included in the measures of treatment of such cases.

ARTICLE V.

REPORT OF TWO CASES OF TRAUMATIC TETANUS, WITH RECOVERY. By F. W. STEBALTS, M.D.

CASE I.—July 16 of the current year, I was summoned to attend H., a boy thirteen years old, who was complaining of stiffness of the whole body. He had trismus to such a degree that only a little fluid could be swallowed, the jaws opening one quarter inch. The neck was stiff and swollen. There was a slight rise in the temperature, restlessness, sleeplessness and constipation. Upon inquiry it was found that the patient had shot himself in the hand with a toy pistol the 4th of July. The wound had subsequently healed. On July 14 he fell into a ditch full of water and got drenched. Tetanus supervened in the next few days.

At first, looking upon the case as one of rheumatic tetanus, I prescribed ten grain doses of salicylate of sodium, to be taken every two hours. I also ordered effervescent citrate of magnesia to move the bowels.

July 18, the bowels had moved, the patient was improved so that he could open the mouth much wider, and he could swallow tolerably well. The salicylate was continued, and the bromide of potassium was given at night for the restlessness. A few days later the patient was able to be out, and subsequently entirely recovered.

CASE II.—July 18, I was called to attend V., a girl fifteen years of age, who for three days had had stiffness of the neck, difficulty in opening the mouth more than a few lines, inability to move, and difficulty in swallowing even liquids. I was called just as spasms of all the muscles were setting in, the spasms being more marked in the muscles of the neck. There was constipation, fever and sleeplessness. Upon examination, it was found

that the patient had been shot in the palm of the hand on July 4th. and the wound, which had not completely healed, was marked by a large cicatrix.

The treatment in this case consisted of citrate of magnesia, which moved the bowels after two days. She took ten grains of chloral and fifteen grains of bromide of potassium every three hours. This produced sleep. After a couple of days the jaws could be opened half an inch, and the general stiffness had slightly diminished. I then added one-fourth gr. of the solid extract of belladonna to the preceding treatment. On the third day, I added tonic doses of quinine, which was discontinued after two or three days, and meanwhile the fever had disappeared.

A week after the beginning of the treatment, the patient could open her mouth an inch wide at times, but the spasms sometimes recurred, when the trismus was more marked, and also the stiffness of the body. Motion returned in the arms after fourteen days, and then in the legs, so that she could be up around, although there was yet difficulty in opening the mouth. I now added the extract of cannabis indica, one-fourth grain, to the bromides, and gave the two three times a day.

After she was able to be out, that is, in the first week of August, I gave the elixir of quinine, iron and strychnia three times a day, and a month after the beginning of the sickness the patient was entirely well.

802 *S. Halsted St., Chicago.*

RUSH MEDICAL COLLEGE opened its session Tuesday, September 26, 1882, with an introductory address delivered by Prof. Norman Bridge. The building has been thoroughly renovated since its last session. They have matriculated four hundred and seventy students.

WE are pleased to learn that Dr. Edw. W. Jenks, who recently established a gynæcological hospital at Geneva, Illinois, is meeting with good success He finds the building entirely inadequate for his purposes, and is making additions thereto.

Hospital Reports.

ARTICLE VI.

COOK COUNTY HOSPITAL, CHICAGO.

CASE OF TETANUS, TREATED BY NERVE-STRETCHING. RECOVERY.

The following is a condensation of the notes taken of the case by the house surgeon, Dr. Mary E. Bates.

Frank Periolat, æt. nine years, had his right foot and leg run over by a street car, June 16, 1882. He was admitted to the hospital the same day. He gave evidence of previous good health, and the shock following his injury was not severe. Examination revealed extensive laceration of the soft parts, a contused wound of the foot, and a compound fracture of the leg, necessitating amputation, which was performed the same day by Dr. Baxter, attending surgeon. The patient having been anæsthetized, the leg was amputated between the upper and middle third, posterior and anterior flaps being brought together, after ligating the vessels, with catgut. A rubber drainage tube was left in the wound, and the flaps were united with silk sutures. The pulse beat 106 a minute, and the temperature of the patient was 92° Fahrenheit. He made a slow but full reaction.

In the forenoon of June 17, patient's pulse ran up to 128, and his temperature to 104.6. He was restless, but did not manifest any pain. He received half a drachm of paregoric twice. He took some breakfast, was given a sponge bath, and took three grains of quinine sulphate three times a day. That day his bowels moved. In the afternoon his pulse was 132, and his temperature 103.4. The next day the pulse returned to 110, and temperature 100.8.

June 19, the dressings were renewed. There was moderate suppuration. A smaller drainage tube was substituted. The pulse and temperature remained about stationary till June 30. The sutures and drainage tube were removed June 23, and the dressings changed. There was a slight amount of suppuration. June 28, only a superficial wound remained.

July 1, patient complained of pain and stiffness in the back of his neck, with inability to open the jaws more than one-fourth inch. This condition the patient first noticed the morning of the previous day.

July 1, patient received by hypodermic injection one sixty-fourth of a grain of physostigma and salicylic extract at six P. M., again at 8:30, and at 9:30. At midnight he had spasms of the glottis, and symptoms of opisthotonos.

July 2, one A. M., he received one sixty-fourth gr. of physostigma in the same manner as before, and took per orem 24 grains of potassium bromide and 15 grains of chloral hydrate, in solution. The pupils were moderately dilated, and patient was quiet. At 2:25 A. M. his pulse was 90, and the pupils were well contracted. Patient asleep. The injection was repeated at 3:15, and at 4 A. M. the jaw was slightly relaxed. 5:30, pupils dilated; injection repeated; pulse 104 to 99.5. 8 A. M. another injection, and 25 grs. of bromide with 15 grs. of chloral per orem. Patient could open the jaw three-eighths inch. The stump of the amputated limb was re-dressed. It looked well. Physostigma was given by hypodermic injection at 11, 12, and at 1 P. M. The jaws opened one-fourth inch. Injections were repeated at one and a half hours interval. Pulse was 122; temperature 100.6. Very little pain was complained of in the back of the neck and head. The risus sardonicus, which had been present some time, now disappeared; spasms ceased. One twenty-fifth gr. physostigma was given every hour. About midnight slight spasms occurred.

July 3, injections continued, except that a few doses were taken per orem instead of hypodermically. The pupils remained dilated; the pulse was 106, and the temperature 100. The risus sardonicus, a drawing downward of the corners of the mouth, returned about 10 A. M. Injections were given nearly every hour.

July 4. Pulse 132; temperature 102.1. The hypodermic

injections of Calabar bean were given every one and a half hour. Patient had convulsions at 8 and 9 A. M., at noon, and at 2:20 and 4 P. M.

July 5, 11 A. M., the patient was etherized, the stump was opened and scraped, one-eighth inch of a nerve was removed, but no spicula of bone nor any other source of irritation was found. The granulations were flabby. A drainage tube was re-introduced into the wound, and some sutures applied, and stump dressed antiseptically. Dr. E. W. Lee made an incision below the gluteal region, two inches in length, and the sciatic nerve was stretched. The anterior crural nerve was also exposed and stretched. Both incisions were antiseptically closed after drainage tube had been introduced. The pulse was rapid, and not very strong. Half a drachm of brandy was given hypodermically. The patient slept all the afternoon under the influence of the ether. In the afternoon his pulse was 121, and temperature 101. At 8 P. M. bromide of potassium with chloral were given, together with one-sixteenth gr. of morphia, which latter was repeated at 9 P. M., and the two former at 10:30. The pupils were contracted, and the pulse was 132.

July 6, 12:30 A. M., the patient had convulsions, which were somewhat controlled by chloroform given by inhalation. At 1 A. M., the bromide and chloral were repeated, also at 2, 3, and 4 A. M. Pupils contracted. During the above convulsions, the tongue was protruded and livid, and there was opisthotonos and tonic spasms of the voluntary muscles; trismus; rapid and stertorous breathing; threatened asphyxia. The chloroform administered relaxed the muscles. The convulsions lasted ten minutes. The following anæsthesia was complete. At 4 A. M. another severe convulsion set in, which was controlled in the manner of the previous one. The chloroform relaxed the pupils. At 7 A. M. one-eighth gr. of morphine was given hypodermically. The pupils contracted, and there was a tonic contraction of the muscles of the neck. 8:30, bromide, chloral, and morphine were given, and the two first were repeated hourly for nine hours. 7 P. M., convulsions, less severe than and treated as the preceding ones.

July 7, hypodermics of morphia were given hourly for six hours. Pulse 118; temperature 99.9. There was no spasm that

night. Bromide and chloral were administered at 9 and 10 A. M., and the patient could open his mouth an inch. Morphine was given alternately with chloral and bromide every hour or two till midnight, when there was another attempt at spasm, and stertorous breathing.

July 8, 4 A. M., some signs of spasm; 8 A. M., severe convulsion, controlled by chloroform; former treatment continued. That day, the drainage tubes were removed from the incisions over the sciatic and crural nerves. The stump of the amputated limb was dressed, and a sanious material was discharged. After irrigation, antiseptic dressings were re-applied, and the treatment continued. At noon the patient drank plenty of milk and coffee. The bromide and chloral mixture was now given every two hours, alternately with hypodermic injections of morphine. Lavements were given to move the bowels, which, however, had been regular till that day, and they moved freely the next morning. The same treatment was continued till July 10, after which the two mixtures were given every three hours.

July 10, pulse 126; temperature 100.5. July 11, there was yet some trismus, but the patient could open his mouth wider. There was a good deal of salivation. July 15, the pulse was 110, and the temperature 99; he was feeling better. Patient subsequently got well.

ROCKFORD, ILL., AUG. 15, 1882.

MESSRS EDITORS:—If a couple of feet of small rubber tubing be attached to an ordinary "finger-stall," such as is found in most drug stores, and its tip, sewed to an elastic band, be pushed into the ear, the stalled finger will convey sounds, in percussion, where nicety is requisite, far better than the ordinary way. It is to percussion, what the stethoscope is to auscultation. An apparatus (cost 28 cents) which I devised yesterday, worked nicely. Should this be worth publishing, use it.

Yours truly, E. C. HUSE, M.D.

Society Reports.

ARTICLE VII.

CHICAGO MEDICAL SOCIETY. Stated Meeting, October 2, 1882.
Dr. J. H. Hollister, President, in the Chair.

The President made a few appropriate remarks, welcoming the members to the regular re-opening of the meetings of the society after their summer vacation; and the secretary read the minutes of the last meeting, which were voted approved.

A discussion of rupture of the kidney being in order, Dr. R. G. Bogue remarked that the injury should be looked upon as one of rare occurrence, and most liable to prove fatal. One case had come under his observation, which resulted in death in four or five days. Referring to Dr. Isham's paper on the subject at the last meeting, he commended the doctor's suggestion to establish a fistulous opening for the drainage of the urine, as its extravasation led to gangrene, and brought about the fatal result.

Dr. James H. Etheridge read a paper on removal of both ovaries, published in this issue of the JOURNAL. A lively discussion ensued. Dr. T. D. Fitch was in favor of the operation when indicated.

Dr. E. W. Sawyer had seen Battey's operation performed several times. One patient on whom Dr. Battey operated some years ago, had told him that all sexual desires had been abolished in her by that operation. An earlier appearance of hair on the face, and various signs of premature old age, were also to be seen in such cases.

Dr. Roswell Park, just returned from an extensive trip in Europe, had discussed the subject with the leading gynæcologists of the Continent. Opinions differed. A former assistant of

Lawson Tait had made the remark that as yet, all the operations of oöphorectomy had been performed by young men; and, Dr. Park added, the present instance is not an exception to the rule.

Dr. E. Ingals had witnessed the operation hundreds of times in the case of swine. It was altogether devoid of danger, required no skill, and was invariably successful. It was of the same import as castration in the male, and in either case, the operation was followed by cessation of sexual acts, and anything pertaining thereto.

Dr. Brower's paper on toy pistol tetanus was now read (see another part of the JOURNAL).

In the discussion which ensued, Dr. Belfield said that the only proof of the existence of bacteria in a fluid were: 1. Their reaction to staining agents; 2. Their cultivation in certain other fluids; and 3. Their mode of development or life history. It seemed to him that, in two diseases at least, they played an all-important rôle. He had given the subject much attention, and with the best advantages had pursued its study under the great masters. He had seen bacteria cultivated under the sealed glasses of microscopes, then inoculated into healthy animals, a rapid multiplication of these bacteria had taken place in the blood of these animals, soon resulting in death. The bacillus of splenic fever, and the fungus of active mycosis had ceased to rank with doubtful organisms. Much discredit had been brought on the subject of bacteria by the rash assertions of physicians who, not being microscopists, had derived erroneous views from their untrustworthy observations, and he placed Klebs in that category; but he considered Koch worthy of a good deal of confidence, considering the long space of time he had devoted to his investigations.

Prof. Lester Curtis asserted that there could be no doubt entertained in regard to the bacterial nature of the organisms which he had obtained from the blood of Dr. Brower's patient. He had cultivaled them under sealed glasses for days under the microscope. They rapidly developed into chains of eight or ten joints. These chains generally held the blood corpuscles. The proper precaution had been taken to exclude the presence of bacteria from other sources during the experiment.

Dr. Roswell Park remarked that there was a tendency among some pathologists to class tetanus among the infectious diseases. As to bacteria, some micrococci, and rod bacteria, were generally found in the discharges of healthy wounds, and seemed of no account. In Dr. Brower's case, the treatment most efficacious would rather indicate that tetanus is an infectious disease; yet it was possible that the contagium had escaped even the microscropical observations of the writer, since the bacteria found in that case seemed harmless.

To a query of Dr. Etheridge, Dr. Brower said that he considered toy pistol tetanus the ordinary traumatic form, and he doubted whether tetanus could ever be idiopathic. He looked upon the disease as one primarily involving the end organs of the nervous system, and approved of cutting or stretching the nerves concerned.

THE College of Physicians and Surgeons opened their new building with great *eclat* on Tuesday, September 26, 1882. Prof. A. Reeves Jackson delivered the opening address. Prof. S. A. McWilliams and Mayor Harrison made speeches appropriate to the occasion. The class is very large for a new enterprise; one hundred and twenty matriculated.

THE CHICAGO MEDICAL COLLEGE opened its winter session on Tuesday, September 26, 1882. The introductory address was delivered by Prof. M. P. Hatfield. The faculty of the college has been materially strengthened since its last session, and many improvements made in the college building.

THE WOMAN'S MEDICAL COLLEGE held its opening exercises September 25. Prof. E. F. Ingals delivered the opening address to the assembled students, showing them, in well chosen language, the best course to pursue in the study of medicine.

Reviews and Book Notices.

ARTICLE VIII.—THE PRACTICE OF MEDICINE AND SURGERY, APPLIED TO THE DISEASES AND ACCIDENTS INCIDENT TO WOMEN. By WM. H. BYFORD, A.M., M.D., Professor of Gynæcology in the Rush Medical College, etc. Third Edition, thoroughly revised and re-written, with 164 Illustrations. Philadelphia: Lindsay & Blakiston. 1881. Pp. 671.

In the preface of the first edition, Dr. Byford says his "object has been to furnish the students and junior members of the profession a concise, yet sufficiently complete, practical and reliable treatise, to meet their wants in everyday practice."

How fully this object was attained in the first and second editions, may be judged by the verdict of the profession, for the second was soon exhausted, and has been out of print for several years, and I am sure a similar result will follow with the present edition, unless the edition has been unusually large. Of the changes of opinion and practice in this, as compared with former editions, he says: "The progress of medical science in the last decade, especially of that department to which this work is devoted, has made so many changes necessary that the present edition is almost a new book;" and he explains further by saying "that, surrounded as I have been by such a throng of active workers, the results of whose labors I have tried to assimilate, my former ideas have been necessarily greatly modified, and, I hope, improved also."

This frankness and modesty of the preface will be found to be characteristic of the whole work. The work of other writers in all parts of the world is carefully accredited to them, but his own

is so modestly stated that one has to search diligently to determine which parts of the work are original with the author—a fact in marked contrast with most writers; indeed, about the only way to determine which portions of the work are original is by the fact that they are not credited to some one else.

In the first five chapters, the author treats of the diseases of the pelvic organs in their anatomical order; the labia, the perineum, the vulva, the bladder and the vagina.

In rupture of the perineum, while he recognizes the possibility of a spontaneous cure under the most favorable conditions, he advises the immediate closure of the laceration by silver-wire sutures; should this fail, then the secondary operation, when the patient is in good health, and the tissues in condition to heal; and if they are not so, we must wait till they are before we operate.

In chronic cystitis, he recommends the rapid dilatation of the urethra under ether, instead of the artificial vesico-vaginal fistula as proposed by Dr. Sims, and practiced still by Dr. Emmet, as the simpler procedure, equally safe, and not requiring a second operation to close the fistula.

The importance of puerperal vaginitis is fully insisted upon. The causes producing it, and its effects in the production of vesico-vaginal, recto-vaginal and the other fistulæ, are carefully stated, and should be read and remembered by every physician called to attend a case of confinement. If the instructions here laid down for the prevention and treatment of puerperal vaginitis were carefully followed, there would be few fistulæ to be closed by operation.

The original method of operating upon fistulæ by Dr. Marion Sims, and the modifications of Drs. Emmett, Bozeman and Simon are fully described and amply illustrated, both as to the style of the operation and the instruments required, as well as the preliminary and after treatment of the patient.

Next follow four chapters on menstruation, its disorders and modifications, including puberty, menorrhagia, dysmenorrhœa, hematocele and menopause. The chapter on puberty should be carefully studied by every physician, teacher and mother in the land, that they may fully instruct those committed to their care as to their exercise, associates, dress, education and amusements,

during the most important transitional period from girlhood to womanhood. For there can be no question that many of the most intractable and almost incurable cases of displacement, chronic cellulitis, and chronic peritonitis can be directly traced to that period and to the errors committed then for their origin, and that lifelong sterility, or death at the first confinement, are the frequent termination of diseases begun at puberty.

Under the topic menorrhagia, the author incidentally describes the attainments the gynæcologist should possess. It would be well if all who aspire to this title would ponder these sentences, pp. 136-7: It will not be regarded as making an undue claim to say that the practice of gynæcology requires more thorough theoretical and practical familiarity with the details of all the branches of medicine than any of the so-called specialties. We are not prepared to treat the most common of female diseases without being able to scan with scientific scrutiny every organ and function of the body. For not until we can compete successfully with the general practitioner, the surgeon, the clinist and the neurologist in the therapeutic processes of their respective departments, may we hope to exercise, in the highest sense, the office of the gynæcologist.

In the treatment of dysmenorrhœa caused by stenosis, while the author seems to advocate the method of dilatation by the use of the slippery elm or laminaria tent, or the sponge tent as directed by Dr. Storer, yet he speaks first of the method by incision, and describes in minute detail the operation of Dr. Sims and the modifications of Dr. Peaslee, without comment, and leaves the reader in doubt as to which method is to be preferred, or how the cases are to be selected for each plan of treatment.

Metatithmenia, or misplaced menstruation and peri-uterine hematocele are treated as synonymous, and vicarious menstruation is not mentioned.

Menopause is not considered, as Dr. Tilt thinks, the cause of many diseases, though it is contemporaneous with a number of the most dangerous affections; still, we need not fear that the change of life will be disastrous, either as a cause of disease, or by injuriously modifying those already existing.

In chapter eleven, acute inflammation of the unimpregnated

uterus is insisted upon, as of other organs, in marked contrast with some recent writers on gynæcology, who teach that there may be congestion of the unimpregnated uterus, but that it can never, or very rarely, go so far as inflammation of the deeper structure of the uterus, but affects only the mucous membrane.

In chapters twelve to eighteen we have perhaps the most important part of the work to the general practitioner, treating of the reflex and local symptoms of uterine disease, their pathology, etiology and diagnosis, with the general and local treatment. The chapters on the reflex and local symptoms are especially full and complete, and no intelligent physician, having fully studied these chapters, and then examined a considerable number of patients presenting these symptoms, as directed in the chapter on diagnosis, and adopted the general and local treatment here advised for a few months, could doubt that the sexual system of the female, in the state of disease, exercises a very morbid influence over nearly the whole organism, and that the only sure and permanent relief is found in the cure of the diseased condition of the sexual organs.

But these chapters cannot be described; they must be studied to be appreciated.

To Dr. Emmet, says the author, belongs 'the credit of first appreciating the importance of and appropriately treating laceration of the cervix. "It very seldom occurs to any man to have the opportunity of giving the profession so complete a description of the abnormal condition, and to perfect the process of cure, so that there is left to others no room for improvement;" a compliment well deserved and truthful, and yet in marked contrast to Dr. Emmet's book, in which he "aims to represent the actual state of gynæcological science and art," but does not allude to Dr. Byford as writer or worker in the field.

Dr. Byford alludes to cellulitis and local peritonitis as complications of laceration of the cervix, but does not speak definitely of the presence of these diseases as contraindications for the operation, though such surely is his practice.

A disregard of these contraindications has indirectly been one of the causes of the fatal result which occasionally follows this operation, and explains why some patients are injured rather than

benefited by the operation. It would have been well to have repeated the cautions given in displacements of the uterus. "It should be remembered that these adhesions are the result of inflammation, and generally local peritonitis, and that this last-named condition is often present in a subdued degree for a long time after the effusion resulting from it has hardened into a false membrane. This circumstance will be a standing caution to the considerate practitioner. It will be easy, by a little indiscretion in our manipulation, to arouse a more acute form of inflammation, and thus do much mischief.

"When there is tenderness behind the uterus, we cannot be too careful; indeed, we should always wait when there is good reason to apprehend local peritonitis, until every evidence of it has subsided, and this will generally require a long time, even if judicious treatment is employed."

And again, in speaking of replacing the retroverted uterus with a lacerated cervix and shortening of one of the broad ligaments, he says: "In all such cases, there is good reason to fear that there is a lurking chronic inflammation in the ligament to which the cervix is attached, which upon slight provocation will be aggravated and become acute."

The chapters on perimetritis and chronic perimetritis need to be carefully studied and their teaching remembered in operating upon the lacerated cervix and treating the displaced uterus.

Our author states his creed in regard to displacements in a a single sentence, and it should be remembered. "I believe that pre-existing disease is the cause of displacements of the uterus in the great majority of instances, and that the displacement is very seldom the cause of the disease usually associated with it."

The cautions in regard to the use of pessaries should be read, re-read, and always recollected. "Hyperæsthesia from inflammation of the uterus, especially in the acute and subacute forms, is incompatible with the use of pessaries. Immobility of the uterus from old adhesions must be be overcome before we can venture to use pessaries. Perimetritic inflammation in the acute, subacute and chronic forms, contraindicates the use of support." In all cases, the instrument should not only not cause pain, but should be attended with a sense of relief.

The causes of that rare but dreadful accident, inversion of the uterus, are fully stated, and should be carefully studied by every accoucheur, for the inference from statistics is that the accident is nearly, if not quite, avoidable, for no cases were observed either by Dr. West or Dr. McClintock in the London Maternity, Charity, or the Dublin Lying-in Hospital—140,000 cases.

Two plans of treatment of the chronic form are described; the one by Dr. White, of Buffalo, and the other by Dr. Tyler Smith, of London.

Dr. White's repositor in use is figured, but though Dr. Tyler Smith's method is preferred and used by the author, neither the instrument nor the manner of its use are figured. There is, it is true, a full description of the manner of using the elastic water bag and its action in reducing the inverted uterus, still, a figure would as much aid the student and the physician who are not used to the instrument, as it does with Dr. White's instrument. "The fact cannot be too forcibly impressed upon our minds, in undertaking this operation, that gentle firmness is the proper expression for the force to be employed. Perseverance, instead of violence, is both more certain, successful and secure, in overcoming the resistance of muscular fiber anywhere, and this is especially true with the uterus, the strongest muscle in the body."

In cases where restoration is proven impossible, amputation is the last resort, and the methods are described, preference being given to the galvano-cautery.

The chapter on diseased deviations of involutions of the uterus is one of the most complete and satisfactory in the whole work. It is divided into the topics, 1. Delayed involution, 2. Subinvolution, and 3. Hyperinvolution.

The term involution is applied also to the uterus at the menstrual period, the changes recuring before or after the menstrual act being analagous to the evolution and involution of pregnancy, though of course less in degree.

"The term and process of involution extend to the changes observed—all the genital organs, the lacteal glands, the ovaries, uterus, vagina, Fallopian tubes, uterine ligaments and perineum."

And the importance of subinvolution is not exaggerated in the statement "that more of the chronic congestions of the uterus

originate in the puerperal and menstrual subinvolution, as here explained, than in any other condition."

The treatment is described as preventive and local.

"During labor, everything should be conducted with the view of preserving the integrity of the soft parts, because damage to any of the parts concerned in labor is pretty sure to be followed by subinvolution.

"The more physiological a labor is made, and the more skilfully conducted, the less the tendency to subinvolution. After labor, complete contraction should be brought about and maintained, not by mechanical irritation, but, if need be, by the use of ergot and vaginal injections of hot water. The most assiduous attention should be especially given to control all inflammations that follow labor.

"More attention and care in conducting patients through cases of abortion and premature labor should be practiced than is usual.

"In chronic cases, the local treatment is of prime importance. If there is laceration of the cervix or perineum, it should receive attention; if misplacement, it must be corrected.

"The use of glycerine tampons and hot water injections will be found applicable and beneficial in most cases. But there is another class of local remedies that I believe to be more serviceable than these, and that is local stimulants applied directly to the mucous membrane, such as iodine, carbolic acid, tr. of iron, etc. The vaso-motor nerve supply of the whole uterus is so intimately connected that it may be considered a unit, and no part of it can be stimulated without affecting the whole."

Cancer is described as of four varieties. 1. Medullary. 2. Epithelial. 3. Colloid. 4. Scirrhus; though the two latter are exceedingly rare. Of the prognosis of cancer he truthfully says, "it is a gloomy one. Indeed, there is no disease which so uniformly terminates fatally as cancer of the uterus. But the gloomy picture is in part relieved by the improved palliative means we now possess."

Of the many medicinal agents for a time enjoying the reputation of cancer cures, such as jaborandi, cundarango, etc., all but one are passed by in disappointment. To this one, chian turpentine, perhaps because it is the last, our author surely gives more

space than it justly deserves, devoting seven pages in small type to Prof. Clay's report of the successful use of this remedy in four cases, with other cases under treatment showing similar effects, and still other cases of cancer in other organs, with remarkable benefit.

But those who have used the chian turpentine in this country have been disappointed in its use, and even the turpentine furnished by Dr. Clay himself, and given according to his written directions, in one case, did not arrest the disease, but the patient went on rapidly to death.

While our author does not fully recommend the formidable operation of total extirpation of the uterus, he "yet hopes that some method of resecting it will some day be invented, which will be less difficult of performance and less dangerous in its results," and he commends highly the operation of Prof. Lane, of California, for removing the uterus by the vaginal method.

Three chapters are devoted to the description and treatment of fibrous tumors of the uterus. They are described as homologous growths of two varieties, the firmer and softer, or myoma and fibroma, but probably both should be named myoma, as they each consist of undeveloped muscular tissue.

Chronic hyperæmia seems to be the condition most likely to favor the formation of these tumors, and a case is described in which it seems to have been the cause. The location of these tumors is fully described, and the symptoms they present during their development graphically narrated, as well as their complications of pelvic inflammations, such as peritonitis, cellulitis, etc.

By the adhesions produced by these local inflammations, new sources of vascular supply are acquired, and new vitality at once imparted to them. Subserous tumors not infrequently in this way take on remarkable activity, after having been stationary in their growth for some time.

The complication of pregnancy occurring with these tumors is fully described, and the dangers pointed out; as miscarriage, obstruction in delivery, and incomplete contraction of the uterus, allowing hæmorrhage. The effect upon the tumor is also noted; namely, its complete removal, in not a few cases, during the involution of the uterus following parturition.

The treatment is naturally divided into two divisions, the treatment of the symptoms and the radical cure of the disease, though the means employed for the one purpose may be applied at times also for the other as well.

As the mechanical pressure of these tumors upon the pelvic viscera is a source of great annoyance to the patient, and at times even of danger, it is important to notice the author's directions in such cases; to elevate the tumor before strong adhesions are formed in the pelvis.

"This may sometimes be done by placing the patient in the knee-elbow position and opening the vagina by two fingers, and then pressing the growth upward. The powerful influence of the atmospheric pressure called to our aid by the position and opening of the vagina, is a very material aid in the process of elevation. If this is not sufficient, we may pass the fingers into the rectum, and thus elevate the tumor."

In the medical treatment of these tumors, but a single remedy is recommended; ergot, "and for this remedy it is claimed, 1, that when properly administered, it frequently very greatly ameliorates some of the troublesome and even dangerous symptoms of fibrous tumors of the uterus, e. g., hæmorrhage and copious leucorrhœa; 2, it often arrests their growth and checks hæmorrhage; 3, in many instances it causes the absorption of the tumor; occasionally without giving the patient any inconvenience. 4. By inducing uterine contraction, it causes the expulsion of the polypoid variety. 5. In the same way, it causes the disruption and discharge of the submucous tumor."

A summary is given of 101 cases in which ergot had been used, by 23 different physicians. Of these 22 cases are reported as cured; 39 tumors diminished in size and hæmorrhage stopped; 19, hæmorrhage relieved, but tumor not affected; 21, no result. Such results as these surely warrant a still more extended use of the remedy, and we doubt not a more extensive experience will corroborate these results. The modes of giving ergot vary with different patients and different physicians; some preferring to use it hypodermically; others by the stomach; others still by the rectum; while some will use it by two or more of these methods at the same or different times. But the result is the same, what-

ever the method of exhibiting the remedy; "and it should be given in the way in which it is, at the time, the best borne by the patient, and in doses sufficient to produce its physiological effect.

"The failure to get any good results in the hands of some practitioners must be attributed to the use of a drug of poor quality, or insufficient quantity, or for too short a time. The treatment of some of my most successful cases extended over many months" says our author.

"The beneficial action of the drug will depend upon the degree of development of the muscular fibers of the uterus and the position of the tumor with reference to the serous or mucous surfaces. The nearer the mucous surface, the better the effects. We can often," he says, "select the cases in which good results may be expected. There are four conditions which are usually reliable for this purpose. They are smoothness of contour, hæmorrhage, lengthened uterine cavity, and elasticity. A smooth, round tumor denotes, for the most part, uniform textural development; hæmorrhage, a certain proximity to the mucous membrane; a lengthened cavity, great increase in the length and strength of the fibers; and elasticity assures us of the fact that cartilaginoid or calcareous degeneration has not begun in the tumor.

"An uneven, nodulated tumor may be composed of many separate solid masses. These displace and prevent the growth of the fibers to such an extent as to render contractions inefficient.

"When hæmorrhage is not present, the tumor is probably near the serous surface, and consequently not surrounded by fibers.

"A short cavity denotes short undeveloped fibers, while hardness is indicative of unimpressible induration. Although I have had no experience in the use of ergot in such cases, I should expect large fibrous cystic tumors to resist its action.

"From this view of the subject it will be seen that I freely admit that there is a large number of cases in which ergot cannot produce any good results, in consequence of their nature, but there is another reason of equal moment why ergot may fail to act upon such cases as would seem to be favorable, on account of the worthlessness of the drug and its preparations."

"When all these causes of failure are considered, the variety of experience met with in the reports upon its trial in the treatment of these tumors is not surprising. It should not, however, be discouraging, but prompt us to more care in selecting the cases and securing reliable preparations of ergot. I have implicit faith in the action of ergot when all the conditions I have pointed out are present. I do not believe it to be uncertain in its action. In addition to the above conditions, I believe perseverance an indispensable condition to success, as it often requires several months to get the best results.

"In concluding," he says, "I desire to disclaim any expectation that ergot will supplant other modes of treatment. The expert surgeon will, as he always has, use his instruments to the neglect of remedies less summary in their effects, and in his hands the maximum of safety will obtain, but there are very few general practitioners who ought, or would be willing to undertake the enucleation of fibroid tumors of the uterus.

"I do claim, however," he says, that the judicious gynæcologist "will lose fewer patients, and secure more cures, by the administration of this medicine, than can be looked for from surgery. I am not surprised that others who have written upon the subject should be incredulous as to the effect of ergot, and the way I account for it is, what I think I can see in their practice as related by themselves, that they do not give the remedy a fair trial. They fail to give it in large enough doses, and do not persevere long enough in its use. The treatment of some of my most successful cases extended over many months.

"When the pains that indicate efficient action, and always precede disruption and expulsion, occur, the practitioner generally becomes alarmed, gives anodynes, and withdraws the medicine, abandoning the case and declaring that ergot is a dangerous remedy. If he had witnessed the same, or even severer pains in labor, he would have encouraged them, and so he should do in expelling the tumor, and the result would be a safe delivery. The tumor would be expelled and the patient relieved.

"But if," says the author, "ergot acts so powerfully in expelling submucous tumors, is there not danger that it may rupture the capsule of the subserous variety, thus expelling them

from the uterine substance into the peritoneal cavity, and endanger the life of the patient by causing peritonitis? But there is a great difference in the influence exerted by the uterine cavity on the two varieties of tumor. In the submucous variety, the whole power of the uterine contractions is exerted toward the tumor, driving it in the direction of the os uteri. When the tumor is subserous, the contractions are from the axis of the tumor; their effect is merely to render it pedunculated, and lessen the vascular supply going to it. The main effect will therefore be to check the rapidity of its growth, or to prevent its further enlargement altogether.

"Another question is, does the long-continued administration of ergot induce the gangrene of the extremities that has been attributed to it? And still another, does it cause inconvenience or danger by affecting seriously the nervous centers? After having given this remedy in frequently repeated and large doses, and observed its effects with great care for a number of months consecutively, I can say that I have not noticed any such consequences, though I am not prepared to assert that there is, and always will be, immunity from such effects. The worst symptoms I have witnessed are the severe and persistent pains, and the apparent inflammation of the uterus and peritoneum, where its action has been excessive. These symptoms have, however, been invariably controlled by proper treatment, and have in no instance proved disastrous. In other cases, when the tumor was slowly disintegrated and expelled, a moderate form of septicæmia has invariably occurred, but this condition has not been sufficiently grave to excite alarm in my mind.

"Whether the observation of the profession at large will or will not bear me out in my earnest belief in the curability of some of these tumors by the means I am now teaching, I do not know; but I am sure there is so much logic in the method that it deserves a more extensive trial than has hitherto been made of it."

Of the treatment of these tumors by electrolysis, he says: "In certain desperate cases this seems to me to be a valuable resource; although in the hands of those brilliant surgeons (Drs. Kimball and Cutter), their mode of performing electrolysis seems

not to be attended with the dangers one would expect to follow such free penetration of the abdominal cavity and the galvanic excitement of these growths: most of us would hesitate to follow their example." "They will, doubtless, pursue this mode of treatment sufficiently to test its efficacy and its danger, and thus enable the profession to properly estimate its value." "Possibly it will be found that very much smaller electrodes and a less powerful battery may produce effects sufficient to dissipate these tumors, and at the same time greatly reduce the hazard of the operation."

The surgical treatment of fibrous tumors is described under the subdivisions, "Removal of polypoid tumors, Enucleation, Laparotomy, Laparo-Hysterotomy and Oöphorectomy."

In the removal of polypoid tumors, danger may arise from, "1st. Laceration, contusion, or other damage to the uterus, resulting in hæmorrhage or inflammation; 2d. Incomplete ablation—the remaining portion producing sepeticæmia; 3d. Shock sometimes following protracted efforts at removal. Torsion and amputation are the methods preferred for the removal of polypoid tumors, amputation being performed by the scissors, knife, ecraseur or galvano-cautery wire.

"Hæmorrhage, which was formerly most feared, is now considered of minor importance.

"The removal by torsion is preferred when practicable, as there is no danger from hæmorrhage or septicæmia, as the vessels are torn and no portion of the tumor is left to slough."

If the cervix is not already sufficiently dilated to allow the proper manipulation, it is to be dilated before operating.

"Enucleation consists in splitting the capsule and turning the tumor out of its bed. The first step is thorough dilatation of the cervix, if it is not already sufficiently open to admit the fingers as far up into the cavity of the uterus by the side of the tumor as they can reach. If the vagina is small, it should also be prepared by dilating. An obstacle sometimes encountered is the imperfect separation of the tumor from the other tissues of the uterus by the capsule or the adhesion of the tumor to its capsule. If this condition could be diagnosed beforehand it would contra-indicate the operation for enucleation.

"The danger after the operation is to be apprehended from shock, hæmorrhage, inflammation and septicæmia. But septicæmia can be more effectually treated after this than after almost any of the other great operations, as the cavity of the uterus can be kept clean by hot carbolized injections.

"Laparotomy we may avail ourselves of for the extirpation of these tumors when less hazardous measures are either impracticable or unavailing.

"The incision in the abdominal walls is made in the same place and in the same way as for ovariotomy, though usually it will be necessary to make it much larger.

"If the tumor is pediculated, the pedicle is to be ligated with a double silk ligature, the tumor removed and the stump dropped into the abdomen as in ovariotomy.

"If the tumor is sessile, and the base too broad to be included in a ligature, the capsule should be freely opened and the tumor enucleated. After which, if the capsule is large, provision should be made for drainage through the uterine cavity, and the capsule closed with 'silver wire sutures.'"

We cannot understand why the author prefers silver wire to the silk or animal sutures.

"When the tumor is situated in the posterior wall of the uterus and small, it may be removed through the vagina by an incision through the posterior vaginal wall.

"In laparo-hysterotomy or the removal by abdominal section of both tumor and uterus and perhaps the ovaries also, the operator is to be especially prepared to stop hæmorrhage, as these tumors are very vascular and are liable to have extremely vascular extensions, and the vascular supply of the uterus is enormously increased as in pregnancy."

The application of the elastic bandage to the tumor before its removal, as recommended by Labbè, is especially commended, as by this means we save to the patient a large quantity of blood, which she can ill afford to lose."

"The elastic bandage is important, also, to control hæmorrhage until the vessels can be permanently secured."

The operation is considered "far more grave than ovariotomy, or even double ovariotomy, as by this the whole genital system,

with all its reflex capacities and sympathetic relations, is suddenly torn from its connections."

"In operations of this kind, conservative surgery," he says, "is of the greatest importance, and we ought never to remove the ovaries when we can preserve them."

But if we remove the uterus and leave the ovaries, we leave the patient, if she recover from the operation, in the condition of the unfortunate patient with congenital absence of the uterus but with active ovaries.

And it is in this condition—congenital absence of the uterus with active ovaries, that Battey's operation or Oöphorectomy is especially recommended. But the cases are not parallel, for in the congenital case there are not likely to be inflammatory adhesions about the ovaries to tease the patient and produce reflex effects, as there must of necessity be after operations in which the ovaries are left. So that, while removal of the ovaries and uterus renders the operation more hazardous at the time, it obviates the necessity of a subsequent oophorectomy.

Battey's operation, or oöphorectomy, was designed to artificially induce menopause, and in that way, it was hoped, relieve many of the intolerable and irremedial forms of oöphoro neuroses that so often perplex the practitioner.

"The operation has also been repeatedly performed for the purpose of arresting the growth of fibrous tumors of the uterus, on account of the favorable effect the natural menopause so generally produces upon them, and in some instances with favorable results."

Our author credits Dr. Battey with "removing the ovaries for the purpose of artificially inducing the menopause," and then reminds the reader that menopause is not change of life, and that this condition —menopause—is something brought about by some of the very conditions for which Battey's operation is performed without producing change of life. But Dr. Battey, in a recent private letter, says: "The object sought in my operation is not the menopause, but the 'change of life by art.' It is applicable to cases where the menses are absent, or, in other words, where the menopause has already occurred."

"The mortality of less than 23 per cent in Battey's operation

certainly commends it. And if, as Dr. Mundè observes, the positive benefits of the operation were as assured as the favorable rate of mortality, the opposition would soon cease."

Dr. Maunder collected thirty-eight cases of oöphorectomy; of these twenty-nine recovered from the operation and nine died. And of the twenty-nine who recovered from the operation, twenty-five are reported as cured, two as not cured, and two not accounted for. But one, at least, of the twenty-five reported cured did not remain so—(Dr. Tyenholme's case).

Our author very wisely says there is another side to this subject. "The general condition of the patients, who are the subjects of these nervous symptoms, is such as in part to account for their sufferings. And we sometimes find that a radical change in the circumstances under which they live will dispel their trouble. Muscular labor, out-door exercises, the loss of luxuries, when brought by inexorable bad fortune, have done wonders in the way of removing oöphoroneuroses."

Dr. Battey's three questions are repeated: 1st. Is this a grave case? 2d. Is the case incurable by any other known resource of medical or surgical art? 3d. Is it curable by the menopause or change of life? If all these questions are answered in the affirmative, the case is a proper one for Battey's operation; but if either cannot be answered satisfactorily in the affirmative, the case is one in which the operation is not justifiable.

Both Dr. Battey and our author prefer the abdominal method for operating unless the ovaries are much prolapsed and are certainly free from adhesions and the vagina large.

The results of the author's cases are that the patients are sterile and do not menstruate, but they are not unsexed in any other sense. "In morals, manners, appearances, affections, propensities and voice they remain the same."

Seven chapters are devoted to the diseases of the ovaries and their treatment. In describing the symptoms of ovarian disease, our author wisely calls attention to the fact "that the nerve supply to these organs is essentially a unit, and it is therefore nearly impossible for us to separate the general symptoms arising from the diseases of the pelvic viscera, into vulvar, vaginal, uterine and ovarian, though it is questionable whether all of the hystero-

neuroses should not be regarded as oöphoro-neuroses, that is direct or indirect morbid emanations from the ovaries themselves. But in these organs we have a circle of functions, to the perfection of which, soundness in all is essential."

The question is asked, are displacements of the ovaries always necessarily accompanied by serious local or destructive general disturbances; and the reply given, No. But in explaining the answer, a single reason only is given, "the *nervous susceptibility* of the patient, either congenital or acquired."

Now, while it is true that the same nerves are more sensitive in some persons than in others, and in the same person at different times, is not the more important explanation in the fact that ovaries are not always diseased, though displaced, and when they are not, there are few or no symptoms of reflex or local disease? This is also true of the uterus, which may be displaced, but if not diseased itself, and if it has not produced disease in the adjacent organs by its malposition, the patient will not suffer from "uterine symptoms."

As those patients suffering from ovarian diseases are usually anæmic or hydræmic, the indication is to improve both the quantity and the quality of the blood, and in this way improve the functional activity of the nerve centers. "Such cases being usually cases of blood exhaustion, rather than nerve exhaustion, and the treatment consists in turning these patients completely around in their habits and lead them to adopt measures that will make them form plenty of blood and fat.

"Dr. Wier Mitchell has taught us how to do this, and his system of managing such patients is admirable, but it is not always practical nor, indeed, necessary to adopt his method as a whole. Absolute rest is necessary only in cases of extreme prostration. In most cases, active exercise will be better than passive, but the exercise should be prescribed in quantity and kind, and enforced with exacting regularity and urged by a decision that will not fail.

"But the most important part of the treatment is the regulation of the food, the prescription of its items and quantity from day to day and these are fully stated. "If the food is not rejected by vomiting or it does not increase the bowels enough to

cause diarrhœa, I would not allow the want of appetite nor the inconvenience that may arise during digestion to be considered a reason for not taking it. Usually the stomach will become tolerant, and after a time the enriched blood, circulating through its glandular apparatus, will engender a relish for food, and the patient will eat with pleasure.

"With this, or some other equivalent method of feeding the patient, there should be associated some plan by which she can get plenty of fresh air, and have as much exercise as she is able to take. The exercise may be passive at first, but as soon as it is possible it ought to be active.

"As long as nutrition can be supplied, the patient will profit by exercise; but if nutrition is impossible, then, of course, exercise is impossible also."

The author belives "this course of management has resulted in a number of instances in averting the dangers and mutilation of the more heroic treatment of castration, by establishing a vigorous and tolerant condition of the nervous system, and thus curing the ovarian irritation. And this plan of treatment is applicable in other cases than displacements of the ovaries, in which there is ovarian irritation.

"In some few cases, when the ovaries are borne down by a displaced uterus, we may occasionally correct the displacement by a well-adjusted pessary, so far as to greatly improve the circulation in these organs, and thus remove a great element in the ovarian distress.

"But in the cases in which the symptoms are most grave, in retroversion and retroflexion of the uterus, the location of the ovaries in the cul-de-sac behind the fundus, renders the satisfactory adjustment of the pessary almost impossible, as the instrument is pretty certain to cause pressure upon these sensitive organs, and thus become intolerant.

"We ought not, however, to despair of accomplishing our object until we have exhausted our ingenuity in mechanical appliances for this purpose.

"And when every other measure fails either to render the condition of the patient bearable or save her from becoming a mental and physical wreck, we still have the resource furnished

us by Dr. Battey, of Georgia, namely, the removal of these organs.

"But we should remember that the operation is very dangerous, and that, if successful, it unsexes our patient in the sense that she is at least barren for all future time."

"When the ovaries are displaced so as to occupy the inguinal canal, the operation for removing them is less hazardous, and may therefore be resorted to with less hesitation."

The author relates a single case of simple acute inflammation of the ovaries, the only one he has observed without complications, there being no local peritonitis or cellulitis, and but slight metritis, with the bladder irritable and the vagina slightly tender.

The treatment consisted in a simple cathartic, poultices to the abdomen, rest, and anodynes as needed for the pain, and in six or seven days the inflammation was subdued and the patient convalescent, and in three or four weeks was entirely well, and remained so.

Three varieties of ovarian tumor are described; the cystic, fibrous and dermoid, the latter being found in other parts of the body and in the male as well.

The author gives a very full account of the various theories proposed to account for their origin, from the earliest times to the present. The most satisfactory and scientific is, that "at an early period of embryonic development, by some accident or imperfection of formation, an indentation in the blastoderm is produced, and, in the wonderful trophic energy of that period, this minute depression is enclosed by the approximation of its margins, and becomes an isolated cavity, and the growth and perfection of the embryo are accomplished, notwithstanding this early accident to the integrity of its envelope."

But we have not the space to reproduce even a sample of this interesting article, and we must refer the reader to the work itself, where he will find a full report of four cases, and a more satisfactory description of these strange tumors than can be found in any other work to which the English reader has access.

Fibroid tumors of the ovaries are so rare that they receive but a passing notice, but nearly six chapters are devoted to the eti-

ology, prognosis, diagnosis and treatment of the ordinary ovarian tumors—cystomata.

As to the cause of these tumors, our author does not agree with most writers, who "would trace all chronic enlargements to a scrofulous taint, but rather explains their origin by supposing inflammation of a low grade and somewhat chronic duration, causing thickening and induration of the indusium, so that it would not yield to the upheaving pressure of the ovisac and permit its dehiscence. When once thus commenced, the stimulus of increased secretion of fluid would produce a kind of hypertrophy in the involucra, which would permit of a further enlargement. But while inflammation is probably the cause of the beginning of the development of ovarian tumors, it does not seem necessary to their continued development, as the accumulation of fluid in a shut cavity with a secreting external surface is a matter of necessity, and the limit of its amount, for the most part, does not depend upon anything but the capacity of the involucra to grow, until interrupted by external circumstances.

"Prognosis. Unfortunately, there is almost no tendency to spontaneous recovery in ovarian dropsy. Probably not two per cent. but would, after a longer or shorter period, terminate in the death of the patient. But this does not properly represent the value of a life threatened by this affection. Some patients live a great many years in comparative comfort, but generally the case is very different, only a few years finishing its course in a downward direction; the average duration of life being about three years from the time it is first noticed.

"Our prognosis will depend upon the form of tumor; whether monocystic or polycystic, the monocystic being much the more favorable for treatment, and more likely to terminate in spontaneous recovery. Again, our prognosis will be influenced by the age of the patient; occurring in young persons it is more likely to advance rapidly than in old ones. It will advance less rapidly after menstruation ceases than before, and the earlier in menstrual life, the more rapidly will it advance."

Our author is a firm believer in the diagnostic importance of the granular cell. He says: "I have never found the ovarian cell described by Drysdale in any but ovarian fluid; nor have I

alimentary canal. "If the patient is greatly depressed by recent bereavement or other cause of intense grief, the indications should be very urgent to justify the immediate removal of the tumor."

If the patient menstruates, he would operate soon after the menstrual flow.

"The personal preparation of the surgeon, assistants and attendants shonld be carefully made. Perfect cleanliness in them is a matter of paramount importance; to this end, ablution of the hands and cleansing of the nails must be thorough immediately preceding the operation; and all articles used in the operation should be as clean as possible."

Ether is always used as the anæsthetic. "All the sponges used should be soft, free from sand and thoroughly carbolized. The carbolized water is from two to three per cent." It is interesting to note here in passing, that Mr. Keith, though reported to have abandoned the spray for fear of poisoning himself and his patients, has now returned to the weaker spray.

The full and accurate description of the steps of the operation cannot be epitomized, but must be studied in the work itself.

If adhesions are very numerous and firm, the method by enucleation, as taught by Prof. Miner, of Buffalo, is recommended.

After cleansing carefully and thoroughly the abdominal cavity, the carbolized spray is directed into the cavity, an assistant raising the lax abdominal walls, so as to perfectly carbolize every part of it.

"The incision is then closed by fine silk sutures and covered with patent lint, saturated with carbolized oil.

"The wound, thus covered, is further protected by cotton-batting five or six inches thick, which extends over the whole abdomen and down well upon the symphysis.

"The whole is secured by a flannel binder, from the pubes to the ensiform cartilage. The spray is continued until the oiled lint is placed over the wound."

In the after-treatment anodynes are recommended in such doses as are necessary to keep the patient free from pain, and

no more. And the temperature of the room, in cold weather, is not allowed to rise above 60° Fah.

But it is impossible to give an abstract of chapters like the "Accidents during the operation," and the "After-treatment of ovariotomy." They must be studied carefully by any one who would attempt the operation. Short chapters on the diseases of the fallopian tubes, coccygodynia or coccyalgia, and electririty, complete the volume.

The proof reading has evidently been hurried or careless. On page 33, Skene is spelled "Skein," and Reynolds "Renolds." Page 143, "Capelo" should read Tupelo; page 179, "perspirations" for perspiration; page 233, "boject" for object; page 242, "is avoided" for is to be avoided; page 277, "Spielberg" for "Spiegelberg; and the same page, "velous" for villous; page 357, "Goupel" for Goupil, and probably "Bennet" for Bernutz; page 353, "pelvic" tumors '*is*'" for "*are*"; page 397, "Gerring's" for Gehrung's; page 462, "Siemond's" for Simon's; page 458, "reply" for rely; page 559, "Weir" Mitchell for Wier Mitchell; page 533, "Chasignac" for Chossaignac; page 561, "even in the more puerpural co dition" for even more in the puerpural condition; page 597, and the corpuscles described by Drysdale for "and *none* of the corpuscles," etc.; page 609, "pubis" for pubes; and same page, "Dieulefois" for Dieulafoy; page 640, "grooved directory" for grooved director; and page 623, the sentence "and the patient escapes the annoyance and dangers which attend the great development that necessarily follows, especially when the operator is an experienced gynecological surgeon," is certainly ambiguous.

But a new edition must soon be demanded, and then we may expect these errors will be corrected.

The style is clear but concise, and always practical, and shows the author to be, as we all know, an experienced teacher.

The work as a whole is most valuable, both to the student and the practitioner, and probably better than any other single work upon gynecology—and there are now so many—represents American gynecological practice. D. T. N.

ARTICLE IX.—NITRO-GLYCERINE AS A REMEDY FOR ANGINA PECTORIS. By WILLIAM MURRELL, M.D., M.R.C.P., Senior Physician to the Royal Hospital for Diseases of the Chest, etc. Geo. S. Davis. Detroit. 1882.

After a short historical sketch of nitro-glycerine and the earlier experiments made in its internal administration by Mr. A. G. Field, of Boston, and Drs. Harley and Fuller, of London, whose statements quite conflicted with each other, the author gives his personal experience with the drug when taken by himself and administered to others in a state of perfect health.

These experiments, in the main, confirmed the observations of Mr. Field, and led the author to try the drug as a remedy for angina pectoris. He states that he has given it in several hundred cases, twelve of which are here placed on record.

Of these, four are classed as successful, and eight as unsuccessful, but in most of the latter the remedy seems to have given more or less relief for a time. In the four successful cases the remedy acted promptly, and gave very satisfactory results.

He usually began the treatment with a one per cent. solution of nitro-glycerine in alcohol, one minim of which was given three or four times a day in a tablespoonful of water. Unless the physiological effects, *i. e.*, headache, pulsations in the head, and drowsiness, were then marked, the dose was increased to two or four minims of the same solution every three or four hours, and an extra dose whenever an attack came on. The dose in most cases was subsequently rapidly increased to ten, fifteen, or twenty-five minims, and in a few cases to much more than this. It was found that sometimes the large dose produced less discomfort in the head than the smaller doses.

One minim of this solution, which is equivalent to gr. $\frac{1}{100}$ of nitro glycerine, he considers a safe dose, and he thinks it always safe to rapidly increase the dose until its physiological effects are developed. Fifteen or twenty minims would usually be a poisonous dose, and in some cases, especially in women, he found it impossible to give more than half or even one-sixth of a minim of this one per cent. solution. Notwithstanding the very unpleasant results sometimes obtained from small doses, in one case he gave as much as one hundred and ten minims of this solution

eight times a day with beneficial results. The author prefers the solution to other preparations of the remedy, though he has also used it in pills and tablets, the latter of which he says "are not very nasty."

A sufficient number of cases have been here recorded to illustrate Dr. Murrell's method of giving the remedy, and the good and bad effects which sometimes follow; but we regret that out of "several hundred" cases he has only given us the results in twelve, and has left us to draw our own conclusions with regard to "several hundred" others. Of these twelve cases, only four were successful, and one of these the doctor never saw. Eight were only partially successful; some of these seem not to have had the affection at all, and one had taken the remedy entirely on his own responsibility, and had not been under the author's observation any of the time. What became of the several hundred others? Let us hope they were cured at once, so that they were not obliged to return for treatment. E. F. I.

ARTICLE X.—THE TRANSACTIONS OF THE AMERICAN MEDICAL ASSOCIATION. Vol. XXXII. 1881. 8vo. cloth. pp. 684. Philadelphia: printed for the Association, 1881.

The first part of these consists of reports, and the address of the late President, Dr. John T. Hodgen, which is a short and practical dissertation on surgery. In the Section on Practice of Medicine, Materia Medica, and Physiology, the usual amount of trash is fairly represented. Dr. W. C. Wile in his article on Blood-Letting in Pneumonia, fails to tell us which disease he refers to, the croupous or the catarrhal pneumonia. As his experience related only to the last few months, it could not be of much value, and as his thirteen cases may have included some cases of catarrhal pneumonia, it is hard telling how beneficial the bloodletting might have been, since quinine and morphine were also used together with it. The next paper is an ordinary note, of no intrinsic value. A paper of Dr. I. E. Atkinson, of Maryland, "May Iodide of Potassium excite Bright's Disease?" is a valuable one for reference.

The next paper in order, Soluble Compressed Pellets, is a

modest and disguised advertisement. Considering the commonplace of what precedes, it is refreshing that the next article be one on "The Materia Medica of the Future," by F. E. Stewart, Ph. G., of New York; unfortunately the realization of harmony between the patent medicine man and the ethical physician, must be a thing of the distant future indeed.

Is Croupous Pneumonia a Zymotic Disease? by Dr. D. W. Prentiss, of Washington, should be read by every old practitioner for his advantage. The section on Ophthalmology, etc., comes next.

The address on Obstetrics by Dr. Chadwick, of Massachusetts, has much statistical value, and contains a certain amount of information which must have cost its author a great deal of patient labor.

The next of the articles in that section are short, but valuable. The section on State Medicine is well filled; that on Diseases of Children opens with a paper of Dr. Jacobi on Contagious Diseases, which is of the greatest practical value, in regard to diseases of the adult as well. The section on Surgery is represented by many of the best surgeons in the country. The rest of the volume (464–684) includes Reports of Special Committees, Index to American Medical Necrology, By-Laws, The Code of Medical Ethics, a List of Permanent Members and the Index.

On the whole, these transactions have a good deal of intrinsic value, but if we desire the future *Journal* of the Association to prove a financial success, we will need to increase this intrinsic value ten fold in the near future. H. D. V.

ARTICLE XI.—A TEXT-BOOK OF HUMAN PHYSIOLOGY. By AUSTIN FLINT, JR., M. D. Illustrated by three lithographic plates, and 315 wood cuts. Third edition, revised and corrected. 8vo. cloth, pp. 978 $6.00. New York: D. Appleton & Co. 1881. Chicago: Jansen, McClurg & Co.

Few authors have given so much time to the study of physiology as Austin Flint, Jr., and his larger work on the Physiology of Man is cyclopædic in character, the one under consideration being more of a compendium, although so voluminous. This

book opens with a consideration of the blood, which represents the knowledge accumulated by many reliable observers, and that is a part of the value of the work, that every investigator receives credit for his discoveries. However, there is a deficiency in the discussion of the latest discoveries and views, regarding leucocytes, fibrin, red corpuscles, etc., and references are never made to the various works of the authors cited, and hardly any note is to be found at the bottom of pages as in Dalton or Foster.

Respiration is the next part considered, and satisfactorily. Then follow in order, Alimentation, Digestion, Absorption, Secretion, Excretion, Movements, Speech, Nervous System, Special Senses and Generation. This last is not treated of in as scientific a manner as the late discoveries demand; and we may add that although the work professes to give all valuable information on any subject it is not really progressive in character, and is not based as it should be on biology, but rather on long accumulated data.

As to the following mooted questions, the author teaches that we see objects inverted, that the blood is the cause of the contraction of the heart, that olfaction takes place from the contact of material emanations with the olfactory membranes, etc. As we might expect of so conservative a work, the various mental processes are not considered as physiological functions of the brain, though the subject is not entirely overlooked.

Before closing, we may state that while in many respects Flint's Text-Book is most complete, in many it is deficient, and in some rather antiquated; while the lack of proper references suggests that his larger work has the one just reviewed for an introduction.

Our intention would be misinterpreted if the preceding criticism deterred students from the use of the book, for it is certainly one of the best ever written in this country, and contains a great deal of valuable information. It is also printed and illustrated in very good style. H. D. V.

ARTICLE XII.—A TREATISE ON HUMAN PHYSIOLOGY. By JOHN C. DALTON, M. D. Seventh edition, with 252 Illustrations. 8vo. half Russia, pp. 722. $7.00. Philadelphia: H. C. Lea's Son & Co. 1881. Chicago: Jansen, McClurg & Co.

This is the "old reliable," the American student's friend. The amount of matter contained in Dalton's is not more than half that found in Flint's, but the original work done by the author, the selection of material, the rapid succession of new editions, and the progressive views assimilated have all contributed to the success of this treatise. Another peculiarity of the book is that instead of adding new discoveries to obsolete views, the author has at each edition, cut the latter while adding to the former, so that the science of physiology becomes very simple, and comprehensive at the same time. The first 130 pages are consecrated to Physiological Chemistry, which is a new science appropriately introduced in this place, as it is not yet made a special department of Medicine. Section II comprises the Functions of Nutrition. Section III, the Nervous System, and Section IV, Reproduction. That is a clear division and grouping, of a nature to greatly facilitate the study of a subject rather intricate. Reproduction is treated of in a remarkably scientific and simple manner, though partaking of general animal and vegetable physiology. Digestion receives a most practical treatment, and the Physiology of the Mind is very suggestive of new discoveries. On the whole, this is an excellent manual, a little costly for the amount of matter it contains, yet having the advantage of a large type, and the greater advantage of being the production of a master. H. D. V.

ARTICLE XIII.—A PRACTICAL TREATISE ON THE DISEASES OF CHILDREN. By J. F. MEIGS, M. D., LL. D. Seventh Edition, revised and enlarged. 8vo. cloth, pp. 1055. $6.00. Philadelphia: P. Blakiston, Son & Co. 1882.

This is one of the most voluminous works on the subject, and also one of the oldest. This edition differs from the preceding in many particulars and probably make it such as to compete successfully with the many newer books now in the market. The

new article on food was greatly needed, and one would desire to have more of the medical rules under which children should be bred extensively described. The common diseases icterus, neonatorum and ordinary jaundice are not noticed, nor is epilepsy, nor headache. Diseases of the skin are treated of at some length, but eye and ear diseases are overlooked. · As we should expect, the authors confound catarrhal fever, lung fever, and pneumonia, and call it a disease of the lungs, while most recent authors recognize a catarrhal pneumonia to be a lung disease; and a croupous pneumonia, an infectious disease. (See Ziemssen). This book is also liable to another criticism which applies equally well to other books whose first edition date of long ago, too large a part of the volume is taken to denounce old modes of treatment, by bleeding, tartar emetic, violent purgatives, etc., of which we had known nothing but for those useless discussions, which take the place of more valuable advice in the methodical treatment of disease. As to that matter of treatment we are rather surprised that the authors give so much prominence to opium in diarrhœas, and do not ever mention the valuable hydrarg. c. creta. But the treatment generally advocated through the book comprises the latest discoveries, and is fully up to the best works on therapeutics. Considering the amount of information contained, the book is rather cheap, and deserves a wide circulation. H. D. V.

ARTICLE XIV.—FROZEN SECTIONS OF A CHILD. By THOMAS DWIGHT, M. D. FIFTEEN DRAWINGS FROM NATURE, by H. P. QUINCY, M. D. Large 8vo. cloth, pp. 66.

These sections were made at Harvard, where the originals are preserved, hardened in alcohol. The author gives the following directions for making frozen sections: "First, be very sure that the body, or part to be frozen is in precisely the position you desire, and that there are no folds or indentations in the skin. I always use natural cold when possible. Weather much above zero (Fahrenheit) is unsatisfactory; but if the part is thoroughly chilled by several days exposure to a pretty low temperature, a night of 10° may possibly finish it. The body should be frozen like a rock—so much so that the operator cannot tell whether he is cutting bone or muscle. The sections should be made in a

cold room, with a very sharp saw that has been chilled. When a section is cut its surface is obscured by a thick half-frozen saw dust, which is doubly thick if the freezing is not quite sufficient. It is wisest if time allows, to remove this at once, which is done by pouring a little hot water over the section, and brushing or scraping it off rapidly and carefully. If it is to be kept (the specimen) it should be laid on a piece of glass or wood, and placed at once while still frozen, in cold alcohol."

This essay is a model in its line, and could hardly be surpassed in excellence, typographical as well as anatomical. We should recommend the process in comparative anatomy, which, of late, has received so much attention. The topography of internal organs could not be more forcibly impressed on the student than through such plates. One would naturally desire that the head had been represented in a few sections, and so the extremities.

H. D. V.

ARTICLE XV.—A RATIONAL MATERIALISTIC DEFINITION OF INSANITY AND IMBECILITY, WITH THE MEDICAL JURISPRUDENCE OF LEGAL CRIMINALITY, FOUNDED UPON PHYSIOLOGICAL, PSYCHOLOGICAL AND CLINICAL OBSERVATIONS. By HENRY HOWARD, M. R. C. S., Eng. 8vo, cloth, pp. 145. Montreal: Dawson Bros. 1882.

This work is really valuable, and will be welcomed in a time when the attention of every practitioner is turned toward insanity. It consists of a chapter, What is Insanity? one on the Medical Jurisprudence of Crime and Insanity, Criminal Responsibility, of a paper on the Brains of Criminals, by W. Osler, M. D., M. R. C. P., the Medico-Relations of Epilepsy, by James G. Kiernan, M. D., of Chicago; and "Some Experiences of a Barrister's Life," by Mr. Sergeant Ballentine; the whole hardly justifying the bombastic title, "The Philosophy of Insanity." This ought not to detract from a careful study of the book, however, as we are persuaded that much useful knowledge will be the result.

H. D. V.

ARTICLE XVI.—THE PRINCIPLES AND PRACTICE OF SURGERY. Being a Treatise on Surgical Diseases and Injuries. By D. HAYES AGNEW, M.D., LL.D. Profusely illustrated. Large 8vo., cloth, pp. 1066. Philadelphia: J. B. Lippincott & Co.

More than a notice of this 2d volume could hardly be expected. It is large and comprehensive, and suffices for all the ordinary purposes of surgeons. It will be, when completed, one of the largest works on surgery ever written by a single author, but will receive a serious competition from the cyclopœdias now being published on the same subject. We think we are justified in recommending smaller books to students, although valuable manuals are hardly to be found in the country. Agnew's Surgery will answer also as a reference book, and is quite an ornament on the shelf.

ARTICLE XVII.—A SYSTEM OF SURGERY, THEORETICAL AND PRACTICAL. In Treatises by Various Authors. Edited by T. Holmes, Surgeon. Edited in this Country by John H. Packard, A. M., M. D. Vol. III. 8vo. half Russia, pp. 1059. Philadelphia: H. C. LEA'S Son & Co. 1882.

This ends the series, and conforms in general with the two first volumes already received. It contains the diseases of the respiratory orgars; of the bones, joints and muscles; orthopœdic surgery; diseases and injuries to the nerves; gunshot wounds; operative and minor surgery; diseases of the skin, etc. Like the other volumes, this is well illustrated.

YELLOW FEVER.—Acting-Collector Goodrich telegraphed from Brownsville, Texas, as follows: The first case of yellow fever occurred in Matamoras a month ago (about July 12), introduced through Bagdad, Mexico, by railroad tramps from Tampico. Average daily deaths in Matamoras the past ten days, ten. The disease appeared in Brownsville two weeks ago. Total number of deaths, ten or twelve. August 12, 20 new cases of fever, and August 18, 32 new cases were reported. August 28, there were 46 new cases.

Editorial.

A "Rod" in Pickle for the Bacillus Tuberculosis.

We propose to publish at no distant date a contribution to the literature of a subject which, though it concerns a very minute body, has been lately gaining in magnitude with every day. Those who read these pages need scarcely be told that, under the persuasive influence of various aniline stainings, bacteria are now daily projected into view in sections of tissues of the living body affected with a no small number of diseases. Koch's discovery of the bacillus of tuberculosis has in this way attracted an attention of the profession and the public which probably exceeds that directed to any similar subject during the past year.

Our readers will remember the position taken by Dr. H. D. Schmidt, of New Orleans, with reference to the bacillus lepræ, in his admirable paper upon that subject which lately appeared in this journal. They who were then arrested by the evident candor of the author, his unquestioned desire to arrive at nothing but exact truth, and his actual submission of the fruits of his labor to the critical examination of a special committee, will anticipate with no little pleasure the perusal of a paper upon an allied subject from the same master hand.

The essay to which we now refer, and which will embody the results of the late studies of the bacilli of tuberculosis conducted by Dr. Schmidt, is based upon observations begun by him during the fall and winter of 1881-1882. These extensive microscopical researches concerned originally the structure, evolution and involution of miliary tubercle. The announcement by Koch of his discovery of the bacillus of tubercle, was made during the progress of this investigation, and naturally served to stimulate Dr. Schmidt

to an extensive series of experiments in connection with this subject. He at once prepared a number of specimens of sputa and thin sections of tuberculous lung tissue, which were stained according to the directions of Koch, as originally given in the *Berliner Klinische Wochenschrift*. But though these staining fluids, methyl-violet and vesuvin, were prepared with the greatest precautions and in exact accordance with Koch's instructions, bacilli by their aid could not be detected. In some specimens of sputa, it is true, certain bodies became visible, having a faint bluish color, which were presented in the form, and of about the size, of small bacilli. Eventually the same phenomena were discovered in thin sections taken from other cases of the same disease. Failing thus to detect the bacillus in sections stained by Koch's own method, Dr. Schmidt had recourse to the old and well-tried bacteria detective, a solution of caustic potash in the strength of thirty per cent. By this method, the presence was established in tubercular tissue of minute rods, which in every respect corresponded to the description given of Koch's bacilli. The same results were obtained after the examination of a number of specimens of sputa. It was noticed, however, that in the examination of the first sections with caustic potash, these rods were almost always found in the company of a group of larger and smaller fat globules; and the idea was naturally suggested to the mind of the distinguished microscopist, that these rods, being very highly refractive, might represent minute crystals of fat. It will be remembered that he had observed groups of minute crystals of margaric acid in the degenerating fat cells seen in leprous tissue.

This idea grew to be more than a suspicion, in consequence of the fact that during the course of the last summer, he had made a large number of sections of the different organs involved in four fatal cases of yellow fever. Some of these, obtained from the liver, heart and kidney, were one day treated with the solution of caustic potash, with a view to determine the presence or absence of bacteria. In consequence of the fatty degeneration which the organs in these cases had undergone, the tissues under examination contained an unusual quantity of fat. When examined under the microscope, bacteria were not detected in any of

the slides, and the latter were thus laid aside upon the table for further examination. Upon the next day, Dr. Schmidt chanced to put one of these again under his objectives, when he discovered, to his astonishment, that it was covered with the most beautiful fat crystals. The same was true of the two other sections, but in all, the figures formed by the minute needles exhibited a difference, showing that the crystallization had taken place under the influence of the tissues themselves. Similar results were obtained by treating tubercular sputa with the potash solution.

We shall occupy no further space in giving details respecting the instructive and fertile theme which is thus suggested. In the paper which we shall publish at no distant date, they who are interested in this subject can follow with our author the line of observation which he has pursued in his remarkable experiments. Let it suffice to add here, that we can confidently assert that every form of Koch's bacillus of tubercle can be artificially produced in all its details by Dr. Schmidt, in every tissue that contains fat.

At a date subsequent to the publication of Koch's method of staining, that of Ehrlich, and also that of Gibbes, were placed before the public. Procuring the aniline oil and the chrysoidine from New York, Dr. Schmidt employed these also with the greatest precision and precautions, obtaining always the same results, that is, the discovery of the rods, but not in a stained condition. In tuberculous tissue, these rods are by no means found to correspond with each other in the matter of form and size. They are generally recognizable in those elements of the tubercular mass which have undergone fatty degeneration, but always in the company of fat globules, and frequently, also, of pigment granules. They are best recognized after treatment with the potash solution, because the latter renders clear the protoplasm of the cells, but eventually destroys it.

At this date Dr. Schmidt has made and examined, by various methods, hundreds of different sections, taken from more than a dozen different cases of phthisis, as also numerous specimens of sputa. The rods correspond in every particular with the descriptions given by Koch of his bacillus, though as yet they have not

been stained. They are highly refractive, and in both stained and unstained sections have a faint bluish color, which has led Schmidt to suspect that they have been supposed by other observers to have actually undergone staining when they had not. The "rods," or, as we shall hereafter call them, crystals, contained within the cells, have been generally found at the margin of the tubercle; very frequently, however, they have been recognized among groups of pigment granules; in some cases, even, large prismatic fatty crystals have been discovered, which, upon closer examination, proved to be composed of minute rods or needles. Sometimes the crystals occurred in the form of plates. All of these forms, however, observed in tuberculous tissue, have been artificially produced in sections which were non-tuberculous.

Let it be distinctly understood, that the position assumed by the distinguished pathologist of New Orleans is not as to the bacilli which Koch himself has seen, though we understand that some of Koch's own preparations are at this moment *en route* to Schmidt's laboratory, where they will be compared with those fat crystals, so-called bacilli, which our author has found to be so marvelously like the bacteria of German importation.

We do not say that the bacillus epidemic, if it may be so termed, will happily terminate in a fat globule and a rod-like crystal of margaric acid. *Parturiunt montes; nascitur ridiculus mus!* What we do say is, that such an issue, if it conclude the controversy, will be one for which we shall all be indebted to the patient, modest, and untiring devotion of the pathologist of the Charity Hospital in New Orleans. Whichever horn of the dilemma our readers may conclude to take, our part is done in giving them the assurance that there is a "rod" in pickle for the bacillus of tubercle, and that it is to be found not far from the delta of the Mississippi!

A VALUABLE sign of death is the lack of muscular contraction under an electric current, two or three hours after the heart has ceased to beat.

Original Translations.

A CASE OF MYELITIS, CONSEQUENT UPON MENINGITIS CERBRO-SPINALIS, WITH DOUBLE SENSATION, AND ITS GRAPHICAL REPRESENTATION.

By OTTO SEIFFERT, M.D., First Medical Section of the Julius Hospital at Wurtzburg. Translated by EDMUND A. BOSS.

The symptoms of double sensation as a complication in tabes have been mentioned in the writings of E. Remak (previously by Leyden), and Naunyn. The latter described in an article a peculiar disturbance of sensation, which differed materially from the experience of Remak.

While in Remak's recorded case the patient, on having his foot sole pricked, first experienced any sensation three seconds after the act was completed, in that of Naunyn (which was probably tabes dorsalis) a like peculiarity occurred, followed in about two seconds by a repeated sensation of increased and abnormal intensity. Naunyn has likewise stated that this phenomenon was observed by him in three other cases. In two of these cases it probably occurred in conjunction with tabes dorsalis, and in the third with myelitis.

This phenomenon Naunyn observed especially in the feet; there was even once a second repetition of the original sensation; generally of two sensations the second was the more prolonged and painful; frequently, however, this order was reversed, the first being longer and more painful. As long as this double sensation continued distinct (*i. e.*, while the interval between the two could be appreciated), so long could the sensation be localized, and so long was the second referred to the same locality as the first. In all of Naunyn's cases, this power of repeating an original sensation lasted but a few days.

Naunyn, in describing these cases of double sensation, inclined toward the theory of Charcot, called Charcot's Dysæsthesia, *i. e.*, that the patient feels at the place of contact a sharp pricking, which, as it is transmitted inward, becomes more obtuse, and finally, at the terminus, is sharp again, as at the beginning of the sensation.

Fischer has also often observed this phenomenon of double sensation mentioned by Remak, and is convinced that it is not infrequent, but differs in his experience from the observation of Naunyn. In a later article Fischer records, among others, a case of double sensation, viz:

A patient thirty-eight years old, afflicted with tabes, came under my care. The second sensations were the reverse of those recorded by Remak, being less painful and shorter in duration, and moreover, the first sensation being experienced two and a half seconds after impregnation, followed by a short period of quiescence, which was in turn succeeded by a feeling ill-defined, as though the foot had simply been touched. Remarkable to say, the intervals between the two sensations decreased until not any interval was distinguishable according to the method employed by Fischer. Below I record a case that came under my notice, and which, according to the testimony of many, merits attention.

He was a man æt. twenty-three, who up to that time had always been in good health, and had lived in comfortable circumstances. Patient became unwell February 23, 1880, while serving then in the army. He returned on the aforesaid day from field manœuvres to the barracks with headache, especially severe in the region of the brow and anterior superior portion of the head; at the same time he complained of feeling very cold. During the night he had a severe attack of chills; headache increased; patient became dizzy; next day he became delirious, and remained in this state till the second week of his sickness. In the meantime his lower extremites began to contract, and patient was obliged to lie in bed with his knees drawn up, voluntary movements being impossible. At the same time his urine was retained, and catheterization became necessary. Three weeks later a serious catarrh of the bladder set in; this was treated with

tincture of salicylic acid. From this time patient began to suffer from incontinence of urine.

After some time he became able to flex his knees, and in the middle of May patient first attempted to walk. His condition improved, and he was able, with the assistance of a nurse, to walk around a room.

In the middle of June patient had a relapse, and was again constantly in bed, and severe muscle cramps caused him great pain. At first only the muscles of the hips were affected in this way: patient felt as though the muscles of his hips were drawn together, his chest tightly laced, and as if his body were elevated, so that on moving he fell several times out of bed. These cramps lasted from a quarter to half an hour, and occurred several times a day. About the middle of August they decreased in virulence, and cramps of similar character occurred in his legs, chiefly in the night. His legs were drawn up toward his abdomen, and were only prevented from remaining in this position by the continued efforts of a nurse. On account of these cramps, the rest of the patient at night was much disturbed; they being separated by an interval of not more than half an hour.

From the middle of September these intervals became longer; first the cramps every hour, then only once a day, so that in a few months they returned only after a number of days; then they would be absent for a number of days again. During the day they would hardly be noticeable, and patient, if awake, could overcome them, and if they occurred at night, he would summon the nurse, who easily straightened his limbs.

Since the commencement of these cramps, indications of impending paralysis—difficulty in moving the upper and lower extremities, and inability to help himself—have become evident, so that patient is entirely unable to leave his bed.

Since December, 1880, constant constipation, which only powerful hydrastic cathartics could relieve; since that time patient has lost all desire to evacuate his bowels.

Since October, passage of calculi, varying in size, with urine; most of them the size of cherry-pits; two of them the size of a bean. In the months last past all these symptoms are constant;

evidence of paralysis in the extremities, bladder, rectum; and cramps in the legs nightly.

Patient was received at the Julius Hospital, November 6, 1881. Status: patient tall; appearance pale; anæmic; no change in the inter-thoracic organs; muscles of hands and forearms atrophied; grasp of the fingers synchronous, but that of the right side less firm than that of the left; strength in both hands very deficient. In the right elbow furrows that can be pretty well smoothed out, though patient complains on stretching out his arm of pain in the muscles of the arm. On bending arm, left side appears stronger; stretching of the arm impossible. Movements in the right shoulder-joint freer, those of the left indifferent. Reflex nervous action of the upper extremities considerably increased; left more than the right. External side of the right arm, on slight touching and slight pricking with needle, shows no sensation; the internal part shows normal feeling and sensation of pain. On the left arm there are no parts incapable of receiving and conducting impressions. The lower extremities are stiff and inflexible, and pressed against the side of the bed.

On the right side, only feeble action in hips and knee-joints; on the left increased activity of movement in the same.

Passive movements difficult, and muscular contractions can only be overcome with difficulty, and on using more force patient complains of severe pains in his legs.

Reflex nervous action of patella, tibialis anticus and tendo Achillis greatly increased, and increase is bilateral.

No abnormality of sensation discoverable in lower extremities. However, by testing in many places, we find the reflex action to be a little tardy.

The muscles about the hips have in part also lost their power of sensation, so that the patient can only sit up in bed with great difficulty; voluntary movements of the hips totally impossible.

Abdomen swollen, nowhere irritable. Pulse soft, frequent (120), regular. Urine constantly dripping, so that patient is obliged to constantly use a receiver. Urine cloudy, alkaline in reaction, and contains a small amount of albumen. Calculi, well rounded, and composed of ammonio-magnesia phosphate, are found in first part of the urine discharged, and are about

pin's head in size. The urinary sediment contained an exceedingly large number of crystals of ammonio-magnesia phosphate.

November 8. Evacuation of fæces difficult. Urine large in amount, 2000-2200 c.c., and of continued alkaline reaction. During the first few days, a large quantity of calculi, some as large as a bean: most of them the size of a pin's head or a split pea, were discharged with the urine.

November 17. Urine for the last few days free from calculi. Incontinence and alkaline reaction continued. Quantity large, 2400-2700 c.c. Faradaic stimulation of the muscles of the upper extremities produces little contraction, and galvanic excitation shows likewise greatly decreased action of the muscles. Galvanic stimulation of the lower extremities demonstrates similarly their diminished power of contraction, and with an intermittent Faradaic current, only feeble, long-continued twitchings were obtained.

November 18. Patient was brought into clinic to-day. In addition to what has already been found on examination before, there are several atrophied spots on his hands; strongly marked furrows on his palms and near the origin of the nails. To-day, for the first time, a singular and remarkable phenomenon was observed in the lower extremities. On pricking the soles and external borders of his feet to ascertain his power of sensation, it was discovered that a single impregnation produced two reflex twitchings and two sensations of pain. The reflex action and the perception of the sensation occurred together. Upon pricking, there was produced a reflex action, and synchronously with it an exclamation of pain; after a short pause, a second reflex action, with a second exclamation of pain. On minutely interrogating the patient, it was ascertained that between the two reflex actions, with their attending outcries, there was no continuing pain.

The treatment up to this time consisted in galvanization of the spinal region, use of Wildunger water, good diet and warm baths. Another symptom is to be mentioned, namely, that cramps in his legs often recurred during the night. Patient used to wake up from a sound sleep in deep pain, which disappeared on changing the painfully cramped position of his legs. The nurses were obliged to stretch his limbs with considerable force in order to

afford the patient relief. The following prescription was used for these cramps:

℞. Calc. brom.....8.0.
Calc. iod.....2.0.
Aqua distil.....150.0.
Syr. Spl.....20.
D. S. 3 tablespoonfuls daily.

November 30. Urine steadily of alkaline reaction, little albuminous; quantity of urine per diem varies from 26-3400 c.c. On account of constipation, cathartics requisite from time to time. Double sensation can still be obtained on the foot sole. When two impregnations with a needle are made rapidly in succession, three sensations of pain are experienced by the patient. If a short time elapse between the two impregnations, he experiences four sensations of pain. The cramps in his legs still continue.

December 15. Patient subjectively little improved. Paralysis of the bladder and sphincter unchanged. No calculi have been lately passed. The warm baths are well borne by the patient, and seem to greatly benefit him. In place of the prescription above mentioned, patient receives every evening a large dose of potass. bromide. Double sensation on foot sole still continues.

December 25. Double sensation still present. The cramps in the lower extremities occur more rarely, and are less painful in character. Patient is made daily to sit in a chair, and to perform simple gymnastic exercises.

January 2. Double sensation unchanged. First attempt was made to day to illustrate graphically this phenomenon; concerning its success and termination see below.

February 1. During the past month bladder and rectal complications show an apparent improvement. Urine continues alkaline, but contains only a small amount of sediment, of pus and ammonio-magnesia phosphate. Calculi are no longer discharged. Power of movement in the hands and fingers much improved; cramps in lower extremities continue; double sensation likewise continues.

[illegible] [illegible] [illegible] [

the stomach will indicate a fatal result. The patient must become accustomed to the stomach pump. The stomach must be emptied before the operation with the stomach pump, and antiseptic surgery should be applied. The incision is made in the linea alba above the tumor (Billroth), and it should be from eight to twelve centimeters long. Hemostasis should be complete before the peritoneum is opened. To explore the stomach is usually difficult, but it presents itself in the aperture in cases of great dilatation, and then it is drawn forward. Some surgeons propose to reunite the opened stomach with provisional sutures, in order to make the operation extra-peritoneal. If there should be too many or too intimate adhesions, it is better to close the wound without any further interference. To isolate the tumor from the great and small omentum, it is necessary to make a number of double ligatures, dividing between the ligatures every time. The resection of the tumor should thus be without any loss of blood, and warm towels should cover all the neighboring parts. After having isolated all parts which have to be elevated, a sponge is laid under these parts, to absorb all the fluids. To prevent this escape of fluids some operators have compressed with hard rubber pincettes; others apply ligatures. Rydygier uses elastic compressors, which he places one centim. above the tumor. These compressors consist of two pieces of iron thirteen to fifteen centim. long, and three-fourths centim. thick, and they are covered with rubber. One is placed on the anterior part of the stomach, and the other on the posterior part. They are fastened by pieces of rubber. The incision is made slowly, with scissors, into the stomachal wall, an assistant ligaturing the bleeding vessels and sponging the parts with phenic or carbolic acid. It is very difficult to obtain two apertures which will fit exactly. Rydygier makes an oblique excision on the duodenum, and he secures thus two surfaces of equal extent. Billroth unites a part of the stomachal orifice with sutures until the other part corresponds with that of the duodenum. The margins of the duodenum are united to those of the stomach in the following manner: The sutures are introduced into the mucous membrane of the stomach; they penetrate the muscular wall and make their exit through the serous membrane one centim. from the surface of the incision;

they then enter the serosa of the duodenum, and pass through the muscularis and mucosa of the same organ. A double line of sutures is made by most operators, in the space of two to three millims. from each other, to prevent the escape of fluid into the peritoneal cavity, and some sutures are introduced on the posterior aspect to adapt the mucous membrane. Catgut and carbolized silk have both been applied with success, but silk is preferable. The reunion of the abdominal walls is made as in ovariotomy. In the first days after, the patient is nourished by the rectum. Twenty-seven resections of the pylorus have been performed, with six recoveries. Shock and prolapsus are the most prominent causes of death. The prolonged application of chloroform causes a weakness of the heart, with following death. When there are adhesions to the pancreas, Billroth closes the wound without extirpating the pylorus. Among 903 cancers of the stomach, 542 were limited to the pylorus. At all events, the extirpation of the pylorus will always be a difficult and dangerous operation. —*Archives Générales de Médecine.*

AMAUROSIS CHINICA.

Three cases of amaurosis by the use of strong doses of quinine are reported. The first, a lady thirty-five years of age, suffered from acute endometritis, and took 80 grains of quinine in three hours. Convulsions set in, hearing disappeared entirely, and the vision was destroyed for five days. The pupils were dilated. Color blindness persisted for nearly one month. The second case was a strong man of thirty-eight years, suffering from pneumonia; he took fifteen grains of quinine in five hours. There was total blindness for three days, and vision was limited for nearly one year. The third case was similar to the second; perception of color appeared much later than that of light. Kirchner has made investigations in animals on this subject, and he found that quinine, as well as pure salicylic acid, causes congestion in the cavity of the tympanum and in the labyrinth, which is frequently followed by hæmorrhage.—*Lo Sperimentale.*

THE editor of the French medical journal "*Le Progrès Médical*" publishes a series of lectures, physiological investigations,

etc., which promise to be highly interesting. The first series begins with five lectures of the celebrated physiologist, F. M. Charcot. These lectures are truly scientific, without a particle of those mysterious sentences to be found in former lectures of Charcot. It seems that the French medical schools are reforming at the present time, and that they again aspire to the high position among medical schools which they occupied half a century ago. Prof. Charcot is doubtless on the path of true scientific research, as these lectures on the pathogenic conditions of albuminaria satisfactorily prove, and the editor of this series, Dr. Bourneville, who is also an earnest and active worker, is to be congratulated on these well selected publications. In our next number we will give some extracts from these lectures.

PYOMETRA CAUSED BY AN ADENOMA OCCLUDING THE CERVIX UTERI.

The patient, sixty-seven years of age, menstruated the last time fifteen years ago. For the last two years a bloody discharge has taken place from the vagina. The patient became reduced in strength. The uterus was movable, but the index finger could pass easily into the os externum. There was a fluctuating tumor, a part of which was extirpated instantly. The microscopical examination showed glandular elements, and proved the growth to be an adenoma of the mucous membrane of the cervix uteri. The patient not agreeing to a total extirpation, suffered for the next three months from severe pains in the suprapubic and right iliac regions, and the discharge had a fetid smell. A severe cough harrassed the patient continually. She at length resolved to undergo the operation. The body of the uterus was now much enlarged and somewhat elastic. The cervix was divided with scissors on both sides, the growth laid bare, and removed by scraping with the curette. When the upper part of the growth was removed, there was suddenly an escape of pus and blood to the amount of 100 ccm. The cavity was then scraped out, and a five per cent. carbolic solution injected. The walls contracted easily, and the woman was dismissed as cured after two weeks. The cough never reappeared from the day of the operation.—*Corresp. Blatt f. Schweizer Ærzte.*

PERIPLEURITIS WITH SUPPURATIVE MEDIASTINITIS.

Peripleuritis is not described exactly in handbooks of pathology. It is an inflammation of the tissue which connects the pleura with the ribs. It can be of a traumatic character, or it may have its origin in the pleura, or an alteration of the bone-substance of the ribs, and it may terminate in abscess. In all the published cases, as that of Dr. Muratti, the cause of the disease is similar to that of empyema. But there are two differential points in these two diseases. In empyema, the ribs and the intercostal spaces are uniformly extended in a large extent of space, while in peripleuritis but one or two intercostal spaces are enlarged. In empyema there is a purulent infiltration between all the pleural laminæ, while in peripleuritis there is but a localized cavity filled with pus. Percussion will show this exactly. The following case gives a true picture of the disease. The patient, thirty-six years of age, complained in the month of December, 1878, of a gnawing feeling and pain in the right side of the thorax, and on pressure of the postero-inferior part of this region the pain increased. Movement of the body did not hurt. In March, 1879, he noticed, beside the pain, a small blister with altered skin around it, which broke open and discharged some pus. Granulations sprang up, but the flow of pus continued. After a while the patient began to expectorate a sweet liquid, similar to that of the abscess. The fistulous opening was enlarged with the knife, and it healed quickly, but the pain reappeared. The patient entered the hospital in December, 1880. The thorax was cylindrical, with lateral deviations from the vertebral column: respiration bronchial. Under the seventh rib of the right side, four cm. from the vertebral column, there was a fistulous opening, the region around it being cedematous, and one point on the rib itself very painful. On the paravertebral region, in correspondence with the fistulous area, there was a very painful place. The vesicular murmur on the right side was very indistinct. The expectorated matter had a similar appearance and taste to that of the fistulous opening. There was further a sucking noise in the fistulous opening [illegible]. The diagnosis was fistula of the [illegible] caries of [illegible] peripleuritis and mediastinitis. An

excision of the rib was made, but the patient died after a short time. The autopsy proved the correctness of the diagnosis.—*Gazetta Medica Italiana.*

SYPHILIS OF THE BRAIN.

The knowledge of syphilis of the nerves and brain has been but lately developed. Virchow speaks first about caseous infiltration of the brain caused by syphilis. Hoyak describes a thrombosis of the arter. fossæ Sylvii with softening of the brain. Esmarch observed cases of mental derangement originating from syphilis. Weber and Wagner showed the presence of nodular growths (syphilomata) on the large vessels of the brain. Heubner's great work on diseased blood-vessels of the brain throws a full light on these pathological phenomena. Prof. Neumann, at Vienna, says that syphilitic degeneration of the central nervous system is discovered by several symptoms. There is intense headache, caused by affection of the dura mater, while dizziness and decrease in the mental functions are effected by impediments in the circulation, *i. e.*, by the diseased vessels which supply the exterior membranes of the brain (Rindenbezirke). The symptoms of a brain affected with syphilis begin suddenly with fainting spells and convulsions, with partial paresis. They do not continue very long, and there are no true paralytic affections; but sometimes there is paresis of the eye or face. From the cerebral symptoms alone it is difficult to make a diagnosis, but there are often affections of the skin, the mucous membranes or the bones. Prof. Neumann had several cases of this kind. The first case was a woman thirty-two years of age, who was delivered of a still-born child two years before, the father of this child being syphilitic. There was a slight erosion on the under lip of the patient, and she had suffered during the past year from epileptic attacks. These attacks had occurred very seldom at first, but afterward they appeared six times in one night. She had made several attempts to escape through the windows. After the use of about 100 grammes of iodide of potassium, all the symptoms disappeared. The second case, a woman twenty-six years of age, had ulcerations on the lower extremities during the last six years. The soles of the feet showed deep scars as a result of psoriasis

syphilitica. On the right tibia there were exostoses. There were first fainting spells, with spasms of the muscles of the face; then epileptic attacks, strabismus convergens, and tonic spasms in the lower and upper extremities, with dilated pupils. At the end of four months, the girl was dismissed as cured. The third case showed in the post-mortem examination a softening of the ganglia, caused by obliteration of both exterior fossæ Sylvii. The fourth case, a man thirty-four years of age, had syphilitic ulcerations on the palate, symptoms of ataxy, disturbances of coördination in the right limb, and paræsthesia in the right hypochondrium. He was entirely cured by the use of iodide of potassium. — *Wiener Med. Wochenschr.*

A CERTAIN FORM OF MUSCULAR ATROPHY PECULIAR TO THE LOWER EXTREMITIES.

The large class of amyotrophies from medullar origin consists of two distinct groups: the deuteropathic and the protopathic atrophies. Progressive muscular atrophy, with all its variations, forms one group of this class; it is also called the Aran-Duchesne type. The irregular march of this disease, its affecting the upper part of the body, and especially the arms and hands, distinguish this class. But there is a muscular atrophy, made known by Dr. Friedreich, which is characterized by its etiology and course of symptoms. This atrophy is a hereditary disease, and it attacks only the lower extremities and hips. It is the same disease known among English physicians as the Weatherbee ail, four generations of the Weatherbee family having been afflicted with the disease. Eulenburg reports a case of three sisters, who were taken sick when eight years of age, and who suffered from deformities of the severest character, caused by this atrophy. Bernhard has seen five brothers suffering from this disease. Naunyn reports cases of a family where the disease has been hereditary for six generations. In the hospital Hotel-Dieu, at Paris, there is at the present time a patient showing the symptoms of the disease in a most peculiar form. He is twenty-six years of age; a hackman; the muscles of the upper part of the body strongly developed. When eighteen years of age, he felt a weakness in the region of the kidneys, and he could but with difficulty climb upon the seat

of his back. The course of the disease has been very slow, and in the last three months the weakness in the limbs has increased to a considerable degree. The muscles in the upper part of the body are very vigorous, and in contrast with that, the muscles on the lower extremities have partially or entirely disappeared. The mass of sacro-lumbar muscles, the extensors and adductors of the upper part of the limb, have atrophied to such a degree that the humerus can be felt as only covered by the skin. The biceps, semi-tendinous and semi-membranous, are regular. The triceps femoralis contracts with good effect. The appearance is that of pseudo-hypertrophic paralysis, and the gait of the patient is the same as in those affected with this disease. The patient walks, balancing laterally, the body resting on one or the other side. By the preservation of the triceps femoralis and the atrophy of the extensors, the patient walks on the anterior part of his feet, there being veritable equinism. The patient can walk with a cane, but he is tired in a very short time. The difficulty in sacending steps is extreme, and he does it mostly by going on hands and feet. There is no trouble from any of the sphincter muscles, as in other ataxic diseases. The atrophied muscles do not act when electricity is applied.—*France Médicale.*

RUPTURE OF AN UMBILICAL HERNIA, WITH PROLAPSUS OF INTESTINES.

A farmer's wife, fifty years of age, has had for the last ten years an umbilical hernia which was as large as two fists. She wore a truss, but this consisted, when seen at the accident, of a hard flat pad, without any leather covering, and attached by a common spring. After she had applied the truss she slipped and fell to the ground, with the abdomen forward, and in this accident the walls of the abdomen ruptured, and the intestines prolapsed in large masses. It was three hours after the accident before the first physician arrived. The umbilical region was covered with intestines, which were of a rosy color and but slightly inflated, the omentum not presenting. The wound was about twelve cm. long; it was serrated and did not bleed. The walls of the ruptured abdomen were hardly two to three mm. thick, without any lamellæ distinguishable. The patient did not com-

patient at any pain, and was entirely conscious. Pulse and respiration were normal; no vomiting. The attempted reposition was not successful at first. There was no incarceration, and three fingers could enter into the peritoneal cavity, but reposition was only effected after several incisions had been made into the umbilicus. The wound was closed by silk sutures, and a flannel bandage tightly fixed around the abdomen. The woman died after twenty-four hours. The immediate cause of death was the reduced temperature of the intestines, which had been laid bare for more than three hours.—*Medic. Chirurg. Centralblatt.*

OFFICIAL LETTER OF THE FRENCH AMBASSADOR AT BERLIN TO THE SECRETARY OF PUBLIC INSTRUCTION AT PARIS.

To the President of the Council:—By a letter dated September 27, 1880, the ambassador had sent a series of documents to the department regarding vaccination in Germany. As a supplement to those communications, I think the following statements will give complete information. The German press has discussed for some time the discoveries of two German physicians, Pissin and Reisner, in regard to proceedings which allow the animal virus (cow-pox) to be kept a certain length of time without losing its efficiency. According to the statement of the journals, the health office of the German Empire has approved the efficiency of these methods, and the possibility of substituting a similar improvement on human virus as is done already in Hesse. The human virus prepared after this method is tenable, easy to preserve and transportable, and it has been introduced into general practice, notwithstanding the serious inconveniences which result from transmission of contagious diseases. Till now, the attention has been directed only to syphilis, but the discoveries of a German savant, Dr. Koch, have greatly enlarged the field of observations. Dr. Koch has scientifically proved the identity of origin of scrofula and tuberculosis. He has found in the human blood a microscopic germ susceptible of dimorphism. This germ is able to produce either of these diseases, according to its development. The dangers having been revealed by Dr. Koch, the methods of Pissin and Reissner have called further attention to this point in Germany, where vaccination is obligatory. According to a law of

April 4, 1874, every child has to be vaccinated before the age of two years, and revaccinated before it is twelve years of age. In cases of unsuccessful vaccination the operation is repeated the next year. The law makes all persons responsible, and fixes certain penalties for remonstrances against it. The statistical tables prove the efficacy and the good results of this law. Germany has been free from epidemics of variola, which gathers so many victims in the large cities of the neighboring states, as St. Petersburg, Warsaw, Vienna and Prague. The immunity stated in the principal German cities, as Berlin, Munich, Hamburg, Breslau, extends also to the ports, as Bremen, Altona, Stettin, Danzig, which latter are in regular contact with the infected countries. It is further observed that variola ceases entirely to make its appearance, and there are but isolated cases in Prussia, Silesia and Posen, which are bordering the Russian provinces, where variola is always epidemic. There is formed, thanks to obligatory vaccination, a veritable healthy frontier.

(Signed) DE COURCEL.

—*Bulletin de l' Académie de Médecine.*

ANÆSTHESIA OF PLANTS.

Claude Bernard has stated that a condition essential to general anæsthesia is the intimate mixture of the blood with the anæsthetic agent. A similar condition is necessary in plants; the anæsthetic agent must be mixed with the nutritive liquid. Paul Bert places a plant under a glass bell filled with anæsthetic vapors; after a few minutes the plant is no longer excitable. There are two periods of intoxication in plants as well as in man; the first is that of excitement, and in the second the excitability disappears entirely; the leaves settle down and the blossoms close. Partial anæsthesia can be obtained in plants by exposing a part of the plant to the anæsthetic. To obtain a complete general anæsthesia of the plant, it is necessary to introduce the anæsthetic into the root and bring it into general contact with the nutritive liquid. One part of chloroform is mixed with three parts of water, and brought into a vase, the plant with the root being placed into it. The top is covered with a dense cloth. Then the leaves of the lower part will first settle down, and the

blossoms of this part will close; afterward the anæsthetic effect will be observed on the middle part of the plant, until at last the whole plant is anæsthetized.—*Lyon Médicale.*

INTERSTITIAL CHRONIC HEPATITIS.

The results of careful investigations which Dr. Maffuci made on this disease are as follows: 1. Atrophic hepatic cirrhosis is always caused by periphlebitis of the vena porta. 2. This periphlebitis is reproduced either by chemical agents, or by septic matter circulating in the blood of the vein, or by mechanical irritants which operate on the tunica adventitia. 3. The inflammatory process is similar to that in other organs; it is characterized by hyperæmia with migration of leucocytes, and by formation of exsudates, in clinical as well as in experimental observations. 4. The periphlebitis is entirely different from the interstitial inflammations of the liver provoked on the biliary ducts. 5. The profound troubles of nutrition of the hepatic arteries cause necrobiosis of the liver. 6. The slighter nutritive alterations of these vessels can effect only an active hyperæmia. 7. The interstitial alterations of the liver provoked by arterial lesions are very different from those produced by periphlebitis. 8. These alterations must be taken into consideration in most observations.—*H. Movimento and Lyon Médicale.*

CONTRACTION OF THE ORIFICE OF THE PULMONARY ARTERY WITHOUT TUBERCULOSIS.

The patient, twenty-one years of age, had been treated for varicocele, and he had been minutely examined on account of certain curious phenomena. The testicles, rather distinctly palpable, were enveloped in a soft mass, formed by the venous plexus of the spermatic cord, which had enlarged to a considerable size. The dilatation extended also to the veins of the scrotal integument. The face of the patient was cyanotic; on the abdomen and the lower extremities there were strongly developed venous irradiations, forming on certain parts veritable bluish sacs. All these phenomena had progressively developed, the patient noticing them first five or six years ago. There was no rheumatism, but the patient had sometimes violent palpitation of the heart. Four days

before his death he acquired an angina by taking cold, and erysipelas, probably of herpetic character, set in. He died suddenly, without any other symptoms. The autopsy showed the right ventricle of the heart dilated; the orifice of the pulmonary artery very much contracted. There was no endocarditis, but the liver was affected with hypertrophic cirrhosis.—*Progrès Médical.*

THE BACILLI OF TUBERCLE.—For the demonstration of tubercle bacilli in the sputum of phthisical patients, Baumgarten recommends the following method as more convenient than those of Koch and Ehrlich. A little of the sputum is dried on the cover-glass, as recommended by the latter, and then treated with potash —one or two drops of a thirty-three per cent. solution of caustic potash added to a watch-glass of distilled water. The tubercle bacilli can then be readily seen with a magnifying power of four hundred or five hundred diameters, and a little pressure renders them still more distinct from the inclosing detritus of tissue. In order to preclude the possibility of confounding the bacilli of tubercle with those of other species, the cover-glass may be raised and placed aside until the layer of fluid on its under surface is dry, and then passed two or three times through a gas-flame, and then on it may be placed a drop of an ordinary watery solution of aniline violet, or any other nucleus-tinting preparation of aniline. All the putrefaction bacteria then appear under the microscope as an intense blue or brown (according to the testing agent and its strength), while the tubercle bacilli remain absolutely colorless, and can be seen with the same distinctness as in the ordinary potash preparation. The whole process does not occupy more than ten minutes.—*The Lancet.*

NITROUS OXIDE.—That this is the safest of all anæsthetics has been established beyond a question. In one institution where such administration is subject of record, this gas has been given over 100,000 times, and not only without a death, but without causing in a single instance symptoms sufficiently serious to necessitate transporting the patient home in a carriage.

Selections.

SOME FALLACIES OF THE BIOPLASSON THEORY. A REPLY TO DR. HEITZMANN. By LESTER CURTIS, M. D., Chicago.

In the June number of the *Dental Cosmos* is an article written by Dr. C. Heitzmann, of New York, on "The Minute Anatomy of the Teeth in the Light of the Bioplasson Theory." It is chiefly an explanation of his peculiar views of cell-structure. The views may be summarized as follows: Every living organism contains in its interior "a delicate reticulum pervading the whole mass." This reticulum has no break anywhere, but is continuous throughout the whole body. It is the machine for the production of all motions, and is the only living part of the organism. There are no such things as cells. The appearances which have been called cells are only condensations of the net-work.

In the course of his article Dr. Heitzmann refers to a recent paper of mine. This paper was a review of his theory so far as relates to the red and white blood-corpuscles and the pus-corpuscle. I will recapitulate some of the chief points of the paper, in order that those who have not read it may the better appreciate Dr. Heitzmann's criticisms.

About three years ago, before I began to study the net-work, I wrote to Dr. Heitzmann and asked him the best method of seeing the structure and the kind and quality of glass necessary to show it. His recommendations were as follows:

"Take a drop of pus, fresh, without adding anything, and you will see the wonderful structure in each pus-corpuscle with great ease.

"Prick your skin on the palmar surface of your thumb, transport the drop on a slide, and cover right away with a thin covering-glasss, the edges of which have been oiled, so as to prevent evaporation of the fluid. In the perfectly fresh blood you will see the structure in each colorless corpuscle.

"Add to a drop of fresh blood a small drop of a forty per cent. solution of bichromate of potash. This will within one hour extract the hemoglobin, and you must succeed in seeing the reticular structure in each red blood-corpuscle."

The glasses recommended for showing this structure with such ease were "a first-class $\frac{1}{10}$ immersion—such as I use—of Vèrick's, Hartnack's, Grunow's, and Tolles's manufacture." The list of names, though containing good ones, is slightly miscellaneous, and nothing is said about the need of anything more than ordinary water immersion-glasses. Indeed, some of these makers had not then, and have not yet, so far as I know, made any of the most modern homogeneous immersion objectives. Nothing is said about the need of any special appliances for illumination. It is probable, therefore, that my microscope, with a Powell & Leland dry condenser, and especially my Powell & Lealand water immersion $\frac{1}{16}$, is fully equal to the task of seeing the structure. With these appliances I have done the most of my work on this subject, though I have also used some of the very finest homogeneous glasses, including Zeis's, Tolles's, Powell & Lealand's new formula $\frac{1}{8}$, and others.

Proceeding according to his directions, I added a forty per cent. solution of bichromate of potash to a drop of blood, and studied the red corpuscles. Many of them lost their color, indeed; but with this loss of color they underwent some other remarkable changes. They became reduced in diameter from one-third to one-half, and their surfaces presented so many wrinkles and distortions that they were almost unrecognizable as blood-corpuscles. I saw no net-work in them, but even if I had seen something that looked like a net-work, I should have placed little reliance upon it as an indication of actual structure, when seen among so many unnatural appearances. I therefore turned from the red to the white corpuscles, following in my study the directions laid down by Dr. Heitzmann.

It so happened that when I began to study the white corpuscle I had been using the objective, with which I wished to study the corpuscle, in the examination of an object protected by a very thick cover. In preparing the specimen of blood I used for a cover a film of mica. The cover-adjustment had been left as it was arranged for this thick cover, and was, of course, wrong for the mica. When I had found a white corpuscle with a lower power, I put on the high power and brought the corpuscle into view. I could not refrain from an exclamation of surprise. There stood the net-work before me as plain as could be, and for an instant I thought that Dr. Heitzmann was right; but the body was blurred at the edges, and the red corpuscles in the field had a fuzzy indistinct outline. It then occurred to me that I had not arranged the cover-adjustment. I began to turn the adjustment; as I turned, the field of view became clearer, but the net-work grew fainter. Finally, when the field came out bright and clear, and the outlines of the red corpuscles were well defined and sharp the net-work was gone. In place of it the corpuscle was covered with little rounded eminences, varying in size and in distance from one another.

These eminences were always seen when the cover-adjustment was right. I had in my possession for some time a very fine homogeneous immersion $\frac{1}{8}$ made by Gundlach. This glass had no cover-adjustment; it always showed the eminences, and never the net-work. The eminences appear to be minute granules, of which the corpuscle is composed. They are seen with great distinctness in the large granular white corpuscles that are so abundant in anæmic persons. Women after prolonged lactation are excellent subjects in which to study them. In some of these cases the nodules are so distinct as to strikingly remind one of the zoogloea masses of bacteria spores that one may see at any time in urine beginning to decompose. In some cases the granules are scarcely less distinct than in the zooglæa mass. I have often seen the vacuoles, which so frequently form in the corpuscles, come so near the edge as to leave only one row of granules between the vacuoles and the edge of the corpuscle. Sometimes this thin rim breaks and leaves the granules projecting in a point. I have even seen some of the granules become detached and float away

from the corpuscle. In some instances the granules leave the body in great numbers, and a shadowy, ghost-like structure remains, with here and there a granule sticking to it.

By keeping the slide with the blood upon it for ten or twelve hours, taking care that the edge of the cover is well oiled, the corpuscles change in appearance. The granules may then be seen to have a swarming motion, resembling that of a collection of bees.

Pus corpuscles resemble the white blood-corpuscles very closely. The corpuscles from an ordinary abscess resemble the white blood-corpuscle that has been kept for some hours. In pus-corpuscles the swarming motion of the granules is often very distinct. I have watched one particular granule in one of these bodies, and seen it move more than half way across the corpuscle before escaping from view. Occasionally I have seen pus-corpuscles in part of which the swarming motion could be seen, while it was absent in the other portions.

These granules within the corpuscles are of a size large enough to be easily measured under a power of from twelve to fifteen hundred diameters. They are also of an appreciable height, as can be seen under a sufficiently high power by gently changing the focus with the fine adjustment, and also by changing the direction of the illuminating-pencil, as can readily be done with the achromatic condenser.

My paper was illustrated with drawings. Part of these were made by myself from nature; the others were careful copies of drawings illustrating net-work made by Dr. Heitzmann or his friends.

All my own drawings were compared with the objects themselves by persons familiar with microscopic observation and were pronounced reasonably good likenesses. Drawings like these were sent to Dr. Heitzmann for his opinion. He criticised them in a letter to me in the following words: "You draw everything in and out of focus." Who will dare determine in every case just what is in focus and what is out of focus, and then venture to decide what to leave out of the drawing and what to put in? If Dr. Heitzmann's words mean anything at all, they mean,

"You should draw not what you really see, but what you think you ought to see."

I hope he is better able to reconcile this method with old-fashioned-honesty than I am. I insist that the only proper and honest way to draw is to draw everything exactly as you see it, without any change at all, and that is what I have tried to do in my figures.

The first of the illustrations of the net-work was made by Dr. Klein of London. It is commended in Dr. Heitzmann's article, and was referred to by him in a letter to me in the following words: "He draws the net-work *even nicer than it really appears*." This disposes of the drawing as a representation of what was actually seen, and shows that it was constructed on Dr. Heitzmann's plan. The other drawings were made by Dr. Heitzmann himself.

My paper also contained arguments the bearing of which Dr. Heitzmann's imperfect knowledge of English may have prevented his perceiving. He, however, should know the details of a controversy upon the interpretation of the appearances seen upon some delicate silicious shells, which are used as tests for the microscope. One of these, called *pleurosigma angulatum*, was formerly described and figured as being covered with a honey-comb of cup-shaped figures, whose sides, united to each other, formed ribs, which ran across the surface of the shell. This was explained as a beautiful plan of nature to economize material and combine strength with lightness. But after a while glasses were improved, and the accuracy of this description was doubted. Then it was proved that, instead of being covered with ridges, the shell was really composed of little beads joined together so as to form a plate. The beads result from the peculiar manner in which silex is deposited from certain solutions; similar beads can be formed artificially. The hexagons, then, were the imperfectly-seen interspaces between the beads.

It is now a recognized fact that a series of circles placed close together will give rise to an optical illusion, and produce the appearance of hexagons bounded by straight lines. If these circles are of equal size and at uniform distances the hexagons will be regular, but if they are of irregular size and at unequal dis

tances, the hexagons will be more or less distorted. We can, of course, distinguish the true shape of the figures if they are large enough and are placed in a good light near the eye; then they will appear distinct and perfectly round. But if they are removed to a little distance, especially if the light is dim, the illusion is so complete as to be almost irresistible, even when we know the shape of the figures. Any one may try this experiment for himself by drawing a series of circles and filling in the outlines with black.

The similarity of these hexagons to Dr. Heitzmann's figures is very striking. It would be of interest to know his explanation of the resemblance.

Most of us who have tried to push microscopic investigation are painfully aware that there is a limit of visibility beyond which we cannot go. The most difficult natural object which is used as a test of the quality of the microscope is another silicious shell called *amphipleura pellucida*. This shell is marked with lines $\frac{1}{90000}$ of an inch apart. When it was shown that these lines had wavy edges, which gave them an appearance somewhat like that of a rope, one of the most difficult of feats was thought to have been accomplished. From this appearance and the analogy of other similar structures it was inferred that the lines were rows of beads. Beads, then, $\frac{1}{90000}$ of an inch in diameter, are almost beyond the border of microscopic visibility, and are only to be seen with the very best of modern homogeneous immersion glasses, used with other modern accessories. But very few have been able to see them, even with these appliances.

Now, to return to Dr. Heitzmann's drawings. They represent the net-work at rest, actively dilated, and actively contracted In the one representing the corpuscle at rest the meshes of the net-work inclose spaces which average rather more than half an inch across. The white corpuscle in Dr. Klein's drawing is magnified not far from two thousand diameters. The meshes in Dr. Heitzmann's drawings are not less than five or ten times as large as in Dr. Klein's. If we may judge from these facts, then, Dr. Heitzmann's figures represent objects magnified *ten or twenty thousand diameters!* Let us look at these figures a little.

The nodal points at the intersection of the lines are largest in

the lower which represents the net-work as contracted. In this drawing the nodes are about one-fourth of an inch across. If we suppose the figure to be magnified twenty thousand diameters the real size of the bodies would be $\frac{1}{80}$ of an inch. But, not to press matters, say it is magnified only ten thousand diameters. This would give the bodies a size of $\frac{1}{40}$ of an inch. Such a body might be seen without excessive difficulty with a good high-power glass. There are, however, some other difficulties that we may consider.

An ordinary white blood-corpuscle rarely, if ever, exceeds $\frac{1}{3000}$ of an inch in diameter. If these figures represent portions of such a corpuscle, then twenty of the nodules placed in a row would extend across the corpuscle, not counting the interspaces. But the interspaces, even in this figure, are about as large as the nodes. Turning to Dr. Klein's drawing, we see that between twenty and thirty nodes are found in the diameter of the body. Twenty nodes of $\frac{1}{100}$ of an inch and twenty interspaces of the same size would be somewhat crowded in a space of $\frac{1}{200}$ of an inch.

In the drawing showing the net-work in a relaxed condition, the nodal points are only one-sixteenth of an inch across. Here we are in a much better condition as regards room, but there arises another serious difficulty. If we still suppose that our corpuscle is magnified only ten thousand times, we shall have a $\frac{1}{400}$ of an inch across, about one and three-fourth times smaller than those beads of *amphipleura pellucida*, which are so small as never to have been clearly seen.

Again, the widest of the lines which connect these nodes are less than the thirty-second of an inch across, and the narrowest much less than this. Does he really expect us to believe that he, or any one else, can see lines less than $\frac{1}{3200}$ of an inch across, and lines, too, exceedingly pale, and buried in a mass of tissue like them in color and appearance?

I might continue this subject further, and call attention to some investigations of Professor Abbe, of Jena, on the ultimate limits of objects, which would afford food for reflection in this connection; but I will leave the point.

Such are some of my observations and reflections on this subject. While engaged in the study I have communicated, personally or by letter, with a large number of microscopists, several of whom have earned more than a national reputation. Some were kind enough to go over the ground together with me and by themselves. Every one of them, without exception, who did so agrees with me. Some have expressed themselves quite strongly on the point, and I have never succeeded in finding an experienced microscopist who believes the theory.

My paper was read at the last meeting of the American Society of Microscopists. There were present a number of life-long microscopists, some of them men of eminence. The paper was received by them with marked favor, and without one dissenting voice, so far as I know.

In spite of this support which the subject has received, the following is all that Dr. Heitzmann has to say about it:

"Lately Dr. Lester Curtis published an article on this subject, and stated that he could not see the reticulum. This is a very modest way to announce that one cannot see what another can. If a person publicly confesses that he cannot play on the piano a master piece of Liszt's, we are willing to believe it; but does it follow that others cannot play the piece either? What is gained by such a confession? Dr. Curtis gives illustrations of what Elsberg and I have said and seen, and of what he could *not* see. I mention this because you are all prepared to understand that delicate observations of this nature are not easily made by every one. A great many look into the microscope, but very few can *see*. If one of you who had never played the violin were handed a good violin and told to play a tune, he would say, 'I can't.' Let him practice for a few years, and learn to play a tune. It is very much the same with the microscope. If you look in for but a short time, you cannot see. It required more than fifteen years' application to enable me to see what can readily be seen, and if a tyro comes and declares that he cannot see, I do not think that such assertions should be taken as proofs against facts corroborated by others."

I submit to the judgment of all fair-minded readers whether such a rejoinder is in any sense an answer to my arguments.

And I insist that until they are answered I have sufficient ground for holding that this net-work is merely the misinterpreted interspace between the granules, and that it is one more example of the many optical illusions which, from before Ehrenberg's day up to the present time, have so often led astray even good observers.

The plate herewith accompanied the paper referred to in the text.

Figs. 1 to 5 were drawn by myself.

Explanation of the Plate.

Fig. 1. An ordinary white blood-corpuscle with one red corpuscle.

Fig. 2. An ordinary white blood-corpuscle from another person, and two red corpuscles lying one over the other.

Fig. 3. Granular white corpuscle from Mr. Griscom: granules beginning to leave the body.

Figs. 4 and 5. Granular corpuscles from Mr. Griscom, discharging their granules.

Fig. 6. A white blood-corpuscle, referred to by Dr. Heitzmann: from Klein's "Atlas of Histology."

Figs. 7, 8 and 9. Representation of the net-work from "The Structure and other Characteristics of Colored Blood-Corpuscles," by Louis Elsberg, page 46: referred to by Dr. Heitzmann. Fig. 7 represents the net-work at rest. Fig. 8, in extreme contraction: Fig. 9, in extreme extension.

On the Treatment of Dorso-Lumbar Abscess by Means of a Free Incision and Subsequent Carbolized Injections.

By Norman H. Chapman, M. D. M. S., late of the Philadelphia Orthopædic Hospital and Infirmary for Nervous Diseases, and the Pennsylvania Hospital, etc.

On February 7th, 1882, Mark C., æt. 55 years, married, a painter, whose weight when taken sick was 208 lbs., came under my observation with the following history:

Twelve weeks ago was taken sick after an exposure to cold and damp, with a chill, fever of low type, pain in right side and general malaise confining him to bed. The aid of several local physicians was from time to time summoned, with the result of giving slight temporary relief, but the progress of the case was invariably downward, never gaining at any time sufficient strength to

leave the bed. His true condition was never taken cognizance of or at all events was never made known to him, nor was anything radical ever suggested for his relief.

Upon examining the case I found a large strumous or cold abscess occupying the dorso-lumbar region upon the right side, which upon being carefully mapped out gave evidence of containing somewhat more than a pint of fluid. The man's general condition from long confinement in bed, and from the constant drain of the formation of pus, was very poor. He had lost over one hundred pounds in weight, and was indeed in almost the last stage of exhaustion from inanition, and the drain of suppuration. He was exceedingly feeble, very restless, delirious at times, and unable to obtain sleep without a heavy opiate. Hectic fever with afternoon exacerbations and evening declines had set in, the variations in temperature ranging from 2° to 3.5° F. The countenance when not flushed with hectic fever was pale and sallow, and the facial expression was that of a great anxiety. The patient did not suggest much pain, and there were none of the evidences of acute inflammation about the tumor, but his generally enfeebled condition was so extreme that I could not consider it safe to subject him to the necessary shock of an operation.

In the treatment of this case I therefore at first instituted a process of over-feeding, and of mild stimulation, by giving the stomach all it could very well handle of such simple and easily digested articles of diet as milk, milk punch, animal broths, gruels, oysters and the like, together with Wyeth's preparations of beef, wine and cinchona. As this systematic over-feeding, a veritable process of stuffing, was kept up from day to day with such slight variations as were most pleasing to the palate, a gradual improvement in the man's general condition was noticed. At the expiration of ten days the hectic fever had abated, he was no longer delirious, did not require opiates and wore a more cheerful expression of countenance.

In consequence of the improvement in the man's general condition I now considered it safe to operate, and was preparing to do so when word came that as the result of an accident which occurred while the patient was sleeping, the abscess ruptured. The

[illegible] being much alarmed hastily bound up the parts with compress and bandage so that at the time probably not much more than one-third the contents of the cavity escaped. Upon removing the cloth some five or six hours after the rupture took place, I enlarged the opening by incision to about three-quarters of an inch in order to give free vent to the fluid, and at this time took from the cavity upwards of fourteen ounces of thick scrofulous pus before it was completely emptied of its contents. When the cyst was well emptied an ordinary eyed probe could be entered into the cavity its entire length in almost any direction, and swept about from side to side, with perfect freedom.

At the first dressing of the abscess it was well distended and thoroughly washed out by syringe, with a one-twentieth aqueous solution of carbolic acid. And in order to protect the parts against the farther ingress of air as much as possible, the opening was carefully covered with the carbolic oil (1 part of carbolic acid to 15 of olive oil) and lint dressing. Over this a pad of oakum was placed, and a large compress so adjusted to the parts as to produce considerable pressure upon the walls of the collapsed abscess, the whole being held in place by a roller. Each day this method of treatment was continued, being careful each time the dressings were changed and the cavity syringed out, that the wound or opening was constantly enveloped in a strong vapor of carbolic acid.

For forty-eight hours after the first dressing the secretion of pus was very rapid, from three to four ounces somewhat decomposed, being removed at each daily dressing. After this time the discharges assumed a more healthy character, and the quantity grew rapidly less. The manner of syringing out and dressing the parts, already mentioned, was practiced every day until the latter part of February, when about two-thirds of the cavity was found to be obliterated. From this time on the carbolic injections were repeated with less frequency, *i. e.* at intervals of two or three days, as the character of the discharge would seem to indicate, and upon several occasions the carbolized solutions used were as strong as one to eight.

Under this treatment the size of the abscess continued steadily to diminish, the man's general health and appearance to improve,

and on March 14th, he got up, and four days later his weight with overcoat was 108 pounds. Upon March 20th, the cavity was almost entirely obliterated, the probe only entering to a depth of about three-quartcs of an inch. At this time the man's general condition was so much improved that he resumed work. In the course of the fortnight following, and under the stimulation of lunar caustic, the remainder of the cavity healed from the bottom by granulation and recovery was then complete.

I also desire to mention that this patient had years before been the subject of primary syphilis, and that during his recent illness there were evident some of the tertiary manifestations of the disease, but he was not, however, placed upon specific constitutional treatment until he was up and about. He was then given liberally of mercury and the iodides.

May 15th. At this date, two months after the patient first got up, he is in excellent health, is rapidly gaining in strength, and in flesh; weight now 168 pounds, and it is constantly increasing. The patient thinks that in a few months more he will entirely regain his old weight and vigor. As to the condition of the side there are no physical evidences whatever of returning suppurative trouble.

Remarks.—In the treatment of this case it was my intention to free the abscess from pus at the earliest possible moment, not by means of the valvular incision of Abernethy, or aspiration, but by a free incision under the carbolic acid spray, after the manner of Lister, and subsequently to follow up the treatment systematically distending and washing out the cavity with moderately strong carbolized solutions. Moreover, the man's general health when I first saw him was in such a precarious condition that any such decided interference with the parts involved must needs prove fatal. I therefore felt called upon to employ every means at my command to support and build up the general health, carefully husbanding every gain which the patient made, and meanwhile, to wait patiently in anticipation of the time when the powers of the patient should be deemed sufficient to enable him to bear up under the necessary shock of an operation. When I had considered this time at hand, however, spontaneous evacu-

ation intervened, rendering an operation unnecessary, and fortunately the accompanying shock very light.

There is a point here in reference to the entrance of air into a pus cavity which should not be overlooked. It is one of the first principles of Lister's treatment as applied to the management of chronic abscess "that during the whole treatment the opening into the abscess shall never for a single second, be exposed to air unmixed with a strong vapor of some volatile antiseptic."* In this case, however, atmospheric air unimpregnated with any antiseptic both came in contact with the opening, and entered the cavity of the abscess, without materially interfering with the subsequent efficiency of the carbolized drainage. The cavity of a scrofulous or cold abscess is lined with a more or less well developed pyogenic membrane, and if after its evacuation it be well distended with a moderately strong carbolized solution, whether air may have entered or not, the character of the lining membrane is changed by the cauterent effect of the acid, and the destruction of atmospheric impurities secured. I do not mean to imply that atmospheric air may freely whistle in and out of the cavity of a cold abscess without doing injury, for such would be the merest absurdity, but the fact which I wish to insist upon is that should air chance to gain access to such a cavity, by accident or otherwise, the occurrence is not an event which need be the cause of undue alarm, because its injurious effects may be at once counteracted by distending the cyst with a moderately strong antiseptic solution. The solution used should be strong enough to change the nature of the lining membrane of the cavity, and to impregnate all of its discharges. Besides this the cyst should be regularly washed out with the carbolized solutions at such intervals as will prevent the discharges from decomposing, and every attention paid to the external dressings of the part.

I have employed aspiration in cases similar to the one related above, but the operation has invariably required to be several times repeated, and the results have never been altogether satisfactory. The line of treatment which would appear to be the most promising of a good result in the management of a cold abscess, and particularly in such as are located in the dorso-lumbar

* Encyclopædia Science and Art of Surgery, new edition, vol. i., p. 137.

region, as I have in a measure illustrated by the history of Mark C's case, is that by a free incision into the most dependent portion of the sac under the vapor of a strong antiseptic; and afterwards by the forcible distention of the suppurating cavity with an antiseptic solution—preferably carbolic acid.

By this mode of procedure is gained a complete evacuation of the cavity, permanent relief of tension, free drainage and no decomposition of discharges. Resolution will in this way be secured, not by the uncertain absorption of pus as after aspiration, nor by granulation, but by contraction of the cavity, together with the approximation and agglutination of its walls.—*Vaughn's Diamond, Kansas City, Mo.*

THE NEW MEDICAL AND DENTAL DIRECTORY for Chicago and the suburbs, which has been gotten up by Mr. C. A. Kendrick, now of this city but formerly of Cincinnati, is completed, and was issued during this month (September). Besides the names, addresses and telephone facilities of the physicians and dentists, there is a very valuable list of professional nurses, whose names have been furnished Mr. Kendrick by leading physicians of the city. The chart also contains a list of the medical publications, medical and dental societies, surgical and dental depots, veterinary surgeons (graduates) and a full list of the medical institutes of the city, such as colleges, dispensaries, hospitals, infirmaries, etc.

Mr. Kendrick's address is No. 70 Monroe street, care of Dr. E. C. Dudley.

The cost to each subscriber is $1.50, including a chart, and some six hundred names have already been enrolled. The design of the publisher, it may be added, is to place copies of the chart in every drug store and medical institution of the city, and the principal hotels.

Items.

CERTIFICATES of Practice, entitling the holders to practice medicine and surgery or midwifery in Illinois, have been issued to the following named practitioners by the State Board of Health:

E. L. M. Bristol, M.D., Chicago, Ill.; diploma of Jefferson Medical College, Philadelphia, Pa.

Albert Beasley, M.D., Grand Tower, Ill.; diploma of Missouri Medical College, St. Louis, Mo.

Julius H. Dietrick, M.D., Chicago; diploma of Swiss Medical Council, Zurich, Switzerland.

Albert B. DeLiplay, M.D., Chicago; diploma of Medical Department, University of Michigan, Ann Arbor, Mich.

Wm. A. Johnston, M.D., Peoria; diploma of Medical Department University of Pennsylvania, Philadelphia, Pa.

Charles H. McGorray, M.D., Chicago; diploma of Medical Department University of Michigan, Ann Arbor, Mich.

A. J. McIntyre, M.D., Thompsonville, Ill.; diploma of Medical Department University of Michigan, Ann Arbor, Mich.

Patrick McCambridge, M.D., Springfield; diploma of Missouri Medical College, St. Louis, Mo.

J. M. Patton, M.D., Oak Park, Ill.; diploma of Medical Department University of the City of New York.

Isaac N. Ruddell, M.D., Charleston, Ill.; diploma of Medical Department University of Louisville, Ky.

Thomas C. Rivers, M.D., Chicago; diploma of Medical Department University of Louisiana, New Orleans, La.

Ernst P. Raab, M.D., Highland, Ill; diploma of Medical Department University of Pennsylvania, Philadelphia, Pa.

M. M. Robinson, M.D., Enfield, Ill.; diploma of Kentucky School of Medicine, Louisville, Ky.

M. F. Spaulding, M.D., Kimmswick, Mo.; diploma of St. Louis Medical College, St. Louis, Mo.

Carl F. Sandberg, M.D., Chicago; diploma of Christiana University, Norway.

Dr. H. Saguin, Amboy, Ill.; certificate of twenty-four years' practice.

Dr. John A. Simmerman, Lane, Ill.; certificate of twenty-seven years' practice.

Edward K. Tyler, M.D., Illinois City, Ill.; diploma of the Medical Department, Iowa State University.

Frank A. Wyanet, M.D., Pullman, Ill.; diploma of the Medical Department University of Michigan, Ann Arbor, Mich.

David A. White, M.D., Oak Grove, Ill.; diploma of the Ohio Medical College, Cincinnati, O.

Charles F. White, M.D., Wayne City, Ill.; diploma of the Missouri Medical College, St. Louis, Mo.

Minnie E. Buchner, midwife, Chicago, Ill.; certificate of the Missouri School of Midwifery.

Elizabeth Brumer, midwife, Piopolis, Ill.; sixteen years' practice.

Elizabeth Koester, midwife, Plum Hill, Ill.; sixteen years' practice.

Johanna Mueller, midwife, Chicago; certificate of examination.

Karoline Novetney, midwife, Chicago; certificate of the University of Prague.

Elizabeth Richardson, midwife, Bluff City, Ill.; sixteen years' practice.

STATISTICS OF INSANITY IN THE UNITED STATES.—Dr. C. L. Dana gives (*Journal of Nervous and Mental Disease*, April, 1882) the following statistics regarding the insane in this country: We had in 1880, in round numbers, 89,000 to 96,000 insane, which gives a ratio of 1-570 (1-520) of the population. The census ratio in 1860 was 1-1,310; in 1870, 1-1,100; in 1875, 1-953. Our population increased in the decade 1870 to 1880 about 26 per cent., while our insane population has apparently increased over 100 per cent. As regards the distribution

of insanity and of its increase, the proportion of insane is greatest in New England, where the ratio is one to 357. Here, however, the rate of increase is becoming slower. In proportionate number of insane, after the New England and Pacific States, come the Middle States (1 to 446); then the Western (1 to 520), and then the Southern (1 to 780). As regards asylum accommodations, in 1881 we had 74 State and 14 large private asylums, with a capacity, approximately, for 31,900, but holding 39,145. At a very low estimate, therefore, our asylums are overcrowded to the extent of 10,000 patients, while there are about 50,000 who are not in any asylum at all. Regarding the cost of asylums, we have about $40,000,000 invested in these institutions, at an average cost of over half a million apiece. It takes about $5,000,000 a year to run them, or $82,000 for each institution, not including interest. If we should add interest, the total annual expenditure for the care of the insane amounts to $12,000,000. The annual cost for each patient has been variously estimated at from $166 to $316.

THE MANAGEABLE ZONE OF ANÆSTHETICS.—Paul Bert has announced some discoveries of great value respecting the mode of action of mixtures of anæsthetic vapors and atmospheric air upon the animal organism. He applies the term manageable zone to the different degrees of admixture, rising from the proportion of anæsthetic which is insufficient to put to sleep, to the proportion which will cause immediate death. In the case of chloroform and ether, the mortal dose appears to be exactly double the minimum anæsthetic dose. Anæsthesia takes place in the middle of the manageable zone very rapidly, and without danger, so that the animal may be left for two hours in the anæsthetic atmosphere without any one being concerned about him. The manageable zone of ether is a little more than three times as wide as that of chloroform, while that of the protoxide of nitrogen is considerably wider that of ether. Here we see why ether is less, and the protoxide of iron still less, dangerous than chloroform.

DR. BLISS has appealed directly to the board of audit to be allowed $25,000 for his services as Mr. Garfield's physician. He

claims his practice was worth $1,500 a month, and this was lost by reason of his attentions to the President. If he was not more successful with his other patients than he was with the President, those who recovered because he had to leave them might feel like "chipping in" to help the government get rid of him.—*Daily News.*

EPIDEMIC CHOLERA.—300 deaths from cholera occurred in one day at Manila, Phillipine Islands, lately. 294 of the victims were natives. A cable dispatch from Japan, August 29, stated that out of 755 cases of cholera within twenty days at Yokohama, 572 cases proved fatal. At Tokio about 80 cases and 50 deaths have occurred daily.

PROF. J. ADAMS ALLEN, President of Rush Medical College, has returned much improved in health from his prolonged tour through Europe, and has taken his residence at the Woodruff House.

Prof. Allen has removed his office to 125 State St.

ELECTRICITY is becoming a frequent cause of death. Two men, while attempting to climb the railing of the Tuileries gardens at Paris, during a display of fire-works, August 8, caught hold of the electric wires used in illuminating the grounds, and both were struck dead instantly.

AT a meeting of the Philadelphia Academy of Natural Sciences, February 7, Dr. Leidy exhibited specimens of worms from the black bass. They were bright red, three to six inches long, and lived coiled up in the stomach and other tissues of the fish.

OPIUM DENS.—August 24, a raid was made by the Chicago police on six opium dens. Nine whites and six Chinamen were arrested. No females were found, and the white men were of a very ordinary class.

THE Siberian plague is appearing in the most widely separated quarters of European Russia. An epidemic of measles spread in Iceland in August.

CLINICS.

MONDAY.

Eye and Ear Infirmary—2.15 p. m.. Ophthalmological, by Prof. Hotz.
Mercy Hospital—2 p. m.. Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes: 3 to 4 p. m., Diseases of the Chest, by Prof. Ross.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m.. Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p. m.. Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m.. Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.
College of Physicians and Surgeons—2 p. m., Medical, by Prof. S. A. McWilliams; 3 p. m., Surgical, by Prof. R. L. Rea.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
College of Physicians and Surgeons—2 p. m., Diseases of the Chest, by Prof. S. A. McWilliams; 3 p. m., Gynæcological, by Prof. A. Reeves Jackson.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, at the South Side Dispensary and at the West Side Dispensary.

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Original Communications.

ARTICLE I.

TRAUMATIC TETANUS. RECOVERY UNDER QUININE AND ALCOHOL. SPHÆRO BACTERIA PRESENT IN THE BLOOD.

By DANIEL R. BROWER, M.D., Professor of Mental and Nervous Diseases, Woman's Medical College, Physician of Nervous Diseases at St. Joseph Hospital, and Consulting Physician to Nervous Diseases at Woman's Hospital State of Illinois.

P. M., æt. fourteen; German; light complexion; athletic; muscles well developed, received a "toy pistol" wound in right natis, on July 4, 1882. A comrade placed the muzzle of the pistol against his clothing, and an explosion accidentally occurred. The cartridge used in the toy pistol contains no ball, but is charged with fulminate of mercury, (as determined by analysis of Prof. W. S. Haines) in unusually large proportions, gunpowder, and a wad made of heavy pasteboard, the whole enclosed in a copper case. The large proportion of the fulminate of mercury causes these pistols to make a loud explosion, and gives great

propulsive power to the wad. The great laceration of tissue these blank cartridges will produce, is surprising. Indeed, it was difficult, in this case, and more so in another I was called upon to examine, to convince one's self that the cartridge contained no ball.

In the case of P. M., there must have been carried into the wound, a portion of his coat, pants, shirt and drawers. The boy suffered so little inconvenience from the wound, that no physician was called at the time of the injury. The boy is a German of a lymphatic temperament, with nervous system quite free from irritability. The father died of an acute disease, aged fifty; his mother is living in excellent health, and is possessed of the same temperament as himself; his grandparents on both sides lived to old age, and no history of nervous disease was found in the family.

On the morning of the 16th of July, I was called to see him, and found him suffering from trismus, that had commenced the night before, and complaining of an acute pain in the præcordial region, with great difficulty in breathing, restlessness, a quick pulse, a temperature one and one-half degrees above normal, and bowels constipated. I found the wound in the integument, in the area of distribution of the ilio-hypogastric nerve, and on pressure quite offensive pus came from the bottom of it. The probe was then introduced, and the wound found to be about one inch and a half deep, flask-shaped, at least one inch in the largest diameter. I enlarged the wound, cleansed it with a solution of carbolic acid, and packed it with iodoform. The integument supplied by the hypogastric area of the ilio-hypogastric nerve was exceedingly sensitive to the touch, and the abdominal muscles were very rigid. I administered at once ten grains of calomel, and ordered a mixture containing twenty grains of bromide of potassium and twenty grains of chloral hydrate, to the dose, to be taken, and repeated in two hours if the patient was awake, and the dose to be repeated at that interval, until sleep resulted. The room he occupied was thoroughly darkened, and every one except his nurse excluded. He was ordered to be fed on milk punch, eggs, and beef soup.

I saw the patient at nine P. M. He was then sleeping; he had taken four doses of the bromide and chloral mixture. I ordered him to be liberally fed, on awaking; the room kept darkened; every one but his attendant excluded; and mixture continued as before. His pulse was 88; temperature of axilla 100; skin in a profuse perspiration. The urine he had passed was high-colored and scanty, specific gravity 1023, and strongly acid; after standing a deposit fell, consisting chiefly of the phosphates. The bowels still constipated.

The morning of the 17th found him awake; the præcordial pain less severe; trismus unchanged; had severely bitten his tongue, and had had a severe attack of opisthotonus during the night. No movement of the bowels having occurred, ordered an enema of castor-oil and soap-suds, the liberal use of milk punch, beef soup, and eggs, and the bromide and chloral mixture continued every three hours. In the evening, the patient's condition was unchanged; he had one attack of opisthotonus, much more severe than first one. Treatment continued, with addition of one ounce of sulphate of magnesia, as no movement of bowels had taken place.

The morning of the 18th, I had Dr. R. G. Bogue see the case in consultation. At his suggestion, a drainage tube was introduced into the wound, to make sure of the free discharge of the pus, and physostigma added to the treatment. I had in my pocket at the time, an aqueous extract of physostigma that had been prepared from a reliable sample by E. H. Sargent & Co., and one half of a grain was administered at once, by the mouth, and the dose ordered repeated every two hours, and the bromide and chloral mixture continued as before.

On the evening of the 18th, found the bowels had moved; and the patient more comfortable.

The morning of the 19th, found the pulse 90 and feeble; temperature 99°; body covered with perspiration; pupils contracted; had had during the night several severe attacks of opisthotonus, and had bitten the tongue badly; trismus unchanged. Treatment continued.

On the morning of the 20th, found the patient no better;

attacks of opisthotonus severe and frequent; strength of patient much exhausted; complains very much of the chloral and bromide mixture; the tongue being swollen and tender, the chloral doubtless irritating it. He was thoroughly under the influence of the mixture; the face contained many lesions of bromide acne, and the mind was much disturbed; insisted upon it that his nurses were trying to kill him. His limbs were now in a constant state of rigidity; he complained of no pain, and slept most of the time. The chloral was omitted from the treatment.

On the 21st of July, found his condition unchanged, with the exception of more exhaustion. His pulse was feeble; temperature 100°; body bathed in profuse perspiration; mind much disturbed by delusions. The muscles of lower extremities and of the abdomen are quite rigid; has had attacks of opisthotonus about every hour of the night. He had great difficulty in swallowing, and was suffering great pain in the præcordial region and in both groins. One fourth of a grain of morphia sulphate was given at once, and ordered to be repeated, if necessary, in two hours. The other treatment continued.

On the 22d of July, I took Dr. Lester Curtis to see the patient, to have him make a microscopic examination of the blood. The patient was much worse; paroxysms more violent, and suffering more acute. The examination of the blood revealed great quantities of sphæro-bacteria. We estimated sixty to the drop. The discovery of these micrococci caused us to immediately change treatment. Regarding alcohol and quinine as the antiseptics *par excellence*, and believing them to be the only ones with which the body can be surcharged without danger to the tissues, we began at once their administration. We gave him four ounces of brandy, and ordered him to receive as much as it was possible to administer, and every fourth hour, in addition, five grains of quinine. We saw him about twelve hours afterward, and found a marked improvement in his condition. He was more comfortable; the spasms had diminished in force and frequency; his pulse was 80 and stronger; temperature 99°; perspiration markedly less. This treatment by brandy, quinine and morphin, together with as much nourishment as possible, was

continued, and the improvement went on without interruption. The brandy was given in as large quantities as he could be induced to swallow, the quinine continued at regular intervals, and morphia given as necessary to allay pain. A trial was made on several occasions of the nitrite of amyl, and for a time we thought it diminished the force of the attacks of opisthotonus. It was given just before the onset of a paroxysm, but it was very disagreeable, and soon lost its seeming efficiency.

The blood was examined again by Drs. Curtis and I. N. Danforth, and the micrococci found as before. An effort was then made to test these revelations by other cases of tetanus, but after a careful inquiry, no other one could be found in the city, except that of a horse, whose blood, upon examination, showed the same kind of bacteria in abundance. A case of reported tetanus in the Cook County Hospital, in the homœopathic department, was examined by Dr. Curtis and myself, and no bacteria found in the blood; but we both regarded the case as one of hysteria, and not of tetanus. We thought our experience had established a bacterial foundation for the pathology of tetanus, but, at the suggestion of Dr. Curtis (who, by the way, is a most conscientious, painstaking and conservative observer, with a large experience in the microscopy of blood), we examined the blood of the mother and sister of my patient, and, to my great surprise, found the same sphæro-bacteria here in abundance. Three weeks later, when my patient was well, with the exception of a great degree of stiffness of the injured limb and some debility, his blood, and that of the mother and sister, were again examined, and bacteria found as before. The mother and daughter seemed in excellent health. The strain upon them had been great. The mother had an infant six months old she was nursing, a picture of perfect health, and, in addition to the care and attention the patient constantly required, night and day—which demand was almost entirely met by herself and daughter, she attended to other necessary household duties; seeming to demonstrate the fact that sphæro-bacteria are not incompatible with great capacity for endurance and the development of robust infants. And, moreover, that sphæro-bacteria may be present in the blood of a

patient suffering from tetanus; may be present during every stage of the disease, from its accession to its subsidence, without in any way influencing unfavorably the progress of the disease toward recovery, or modifying in the slightest degree its characteristic manifestations. The prevalence of bacteria in this family led us to investigate more carefully their surroundings. They live in the principal story of a house with windows opening south, on a vacant lot, much below the level of the street, and in this vacant lot there was a large pool of stagnant water. Some of this water was examined by Dr. Curtis, and the same kind of bacteria there found in abundance.

These developments suggest the possibility that the micrococci found in cerebral spinal meningitis by M. Ernest Grandier (*Revue Médical*, June 3, 1882), and the bacteria found by Baumgarten in hydrophobia, and by Keating in malignant measles, may have a similar origin, and have no more relation to the etiology of the diseases they describe, than the bacteria in the blood of my patient, or in the blood of the horse, had to tetanus; and, indeed, that bacteria generally may be purely accidental, even in phthisis pulmonalis, notwithstanding the brilliant discoveries of Koch, and the reported cure of consumption by continuous inhalations of antiseptics. The carbolic spray of Lister is no longer fashionable, and bacteria to-day are not held responsible for all the failures of surgery, especially as they have been found in wounds where every Listerian precaution was taken, so that Mr. Lister himself acknowledges that bacteria can work no harm to the body while the vital action is maintained in its integrity.

We call the attention of the readers of this article to the admirable paper of Dr. Lester Curtis that accompanies it. In this paper, the doctor simply describes what he saw, without calling the bodies by their specific names, but he has no doubt about their being bacteria. We have together examined them in comparison with the sphæro-bacteria from a pyæmic abscess, and found them precisely the same in their reactions to light, in their movements, and their properties generally. The slides were carefully examined by Drs. Boerne Bettman, and Roswell Park, of this city, who are fresh from the study of bacteria in the

laboratories of Germany, and by Dr. I. N. Danforth, one of the leading pathologists and microscopists of the Northwest; and they agree with Dr. Curtis that the bodies found are bacteria.

The bacterial origin of tetanus having been disposed of, we are forced back upon the nervous system to find the morbid anatomy of its pathological manifestations. Here we are surrounded by uncertainty, for no one lesion has been described which may not be found in cases of ordinary paralysis, progressive muscular atrophy, locomotor ataxia, and kindred diseases, that manifest no single symptom of tetanus; and furthermore, notwithstanding the most careful observation of the cerebral nervous system by competent pathologists, cases have occurred in which no lesion whatever has been discovered; so that we are forced to the conclusion that the lesions described are probably the effects, rather than the cause, of the phenomena of tetanus.

The lesion most frequently found is vascular engorgement of the spinal cord, and subsequent exudations and disintegrations. Dr. E. L. Fox (Path. Anatomy of Nervous Centers, page 355) gives the result of careful microscopic examination of five cases. In the first, the cord was perfectly healthy, the only abnormality found being engorgement of the vessels of the spinal pia mater. In the second, the cord was universally softened in its whole extent and thickness. In the third, the spinal cord and membranes were healthy down to a point corresponding to the tenth or eleventh dorsal vertebra; here there was effusion of blood outside the spinal dura mater, and for a half inch softening of cord. In the fourth case, the softening was limited to the posterior columns of the cord, except at the very top, where one inch of cord was involved in the necrosis. Demme and Rokitansky describe lesions similar to those of sclerosis, disseminated throughout the entire spinal cord. Wiegand recognized analogous appearances, in particular, hypertrophy of the neuroglia elements which are found in the gray commissure surrounding the central canal.

Cornil and Ranvier, in their examination of analogous cases, found a normal condition in this location.

Dr. Joseph Ross (Diseases of Nervous System, Vol. I, page 850) found marked softening in the lumbar region, and infiltra-

tion of the cord generally with leucocytes; but the most interesting changes were observed in the ganglion cells of the anterior horns. The cells of the median group and the marginal cells of the other groups, under a low power, seemed to have disappeared, but under a higher power they could be seen shrunken in their cavities. The cells of the antero-lateral, and a few of those of the postero-lateral groups, were of normal size. The inferior portion of the nucleus of the hypoglossal, spinal accessory and pneumogastric all suffered. The root of the fifth nerve proceeding from the cerebellum, showed large vessels distended with red blood-corpuscles, and the whole surrounding tissue was densely infiltrated with leucocytes. The corpus dentatum of the cerebellum, and white substance adjacent, was also densely infiltrated with leucocytes, and intersected with distended blood-vessels. The cells of Purkinje were also surrounded with leucocytes. The accessory nuclei were found nearly destroyed by the same degeneration.

Dr. William Aitken (Science and Practice of Medicine) says: "My own observations on the specific gravity of portions of the cord in tetanus, lead me to the belief that the blood vessels, and thus vascularity rather than nerve tissue lesion, have much to do with the phenomena." He found a marked increase in the specific gravity of the cord in those parts connected with the nerves going to and proceeding from the wound, as compared with other portions of the cord.

To sum up these central changes, we find the evidence of disturbed vascularity, probably hyperæmia; and that this disturbance of nutrition sooner or later produces degeneration. It is not surprising that there should be found in other diseases more or less dependent upon disturbances in vascularity, the same pathological changes that we have in tetanus. They are not the beginning of the disease. Just as the degenerations are secondary to the vaso-motor disturbances, so are the vaso-motor disturbances secondary to something else. We must look for this something in the condition of the peripheral nervous system, especially in the sensory end organs. These end organs are just as essential to the manifestations of nervous phenomena as the centers are, and we have no doubt that they are the origin of much that is

obscure to day in neuro-pathology. Something of the important relations that we consider these organs have, may be seen by instituting a comparison between the ordinary manifestations of electricity and nerve force. Take the ordinary telephone, and we find the microphone to be its end organ; the battery is its central nervous system; the wires its peripheral nerves. Now, this telephone may be rendered useless by a section of its wires; by a failure of its battery; but just as much so by an injury to its microphone. In every case of traumatic tetanus where careful examination has been made of the nerves leading from the wound, there has been found evidence of congestion; of alteration of texture; of inflammation.

Dr. W. A. McDowell (*New Orleans Medical Journal*, March, 1846) has induced tetanus by the introduction of irritating bodies into the nerves. He introduced minute tack points into the musculo-spiral nerve of one dog, and into the ulnar nerve of another dog, passing the tacks completely through the nerves, burying both extremities within the theca. Tetanus developed in one in six days, and in the other in three days afterward.

Mr. Poland has shown (Guy's Hospital Reports, 3d Series, Vol. III,) that lacerated wounds are much more frequently attacked with tetanus than incised wounds; that the disease occurred only in one case out of 1,364 where the wound was made with a sharp knife, but it ensued in one out of 55 where the nerves were injured, as in an accident.

Baron Larrey, whose personal observation of the disease was exceedingly extensive, held the view that irritation is first set up in the wound and injured nerves, and recounts several cases in which the disease was either cured or greatly relieved by section of the nerves or amputation of the limb. He also records several cases in which recovery followed the application of the actual cautery to the wounded surface and to the extremities of the injured nerves.

Mr. Erichsen (Science and Practice of Surgery, page 578), who made numerous post-mortem examinations of traumatic tetanus, said that the only morbid condition that is constantly found, is a degree of inflammation of the nervous twig leading from and

explored in the wound, and the vascularity may be traced up the cornu-lemma, often for a considerable distance. He relates several instances in which recovery resulted from section of nerves, and advises, in those cases in which no special nerve appears to have been injured, Liston's recommendation of making a V shaped incision down to the bone above the part, so as to isolate it completely.

Langenbeck Syd. Soc. Year-Book: p. 230. 1863. gives the record of three cases that sustain the view that tetanus is dependent on local irritation. In the first, the removal by an incision of a fragment of a needle was followed by an immediate subsidence of the symptoms and recovery of the patient. In the second, the removal of a ligature that had been tied *en masse* after castration, at once stopped all the symptoms. In the third case, the reduction of a fracture which was attended with great displacement, had the desired effect.

Velletier, Froriep, Curling, Hasse and others, record numerous cases corroborative of the origin of tetanus in peripheral irritation. The fact of sudden atmospheric changes, as from warm to cold, increasing the tendency to tetanus, has been generally recognized. I can bear witness to this in three cases of traumatic tetanus that developed in my service in the U. S. Army, 1864. These wounded men were doing well, until a sudden change in the atmosphere occurred, the wind shifting suddenly in the night from south to east, and they occupying beds beside open north windows. They were almost immediately seized with trismus, and in two of the cases death speedily followed. This fact in the etiology of tetanus strengthens the position we are trying to maintain. The essential pathological factor in the impress of cold, is its effect upon the sensory end organs of the peripheral nerves. The chill experienced is the commotion set up in these organs and transmitted to the brain. The pains "all over;" the aching of the joints, limbs and back; and sense of tightness across the forehead, a part of the history of every "common cold," is but the expression of irritation, the result of disturbed nutrition in these same sensory end organs. We relieve this end organ depression, if we give promptly, before

vaso-motor disturbances are established in the centers, stimulating doses of morphia, quinine and alcohol; remedies that have in small doses a stimulating effect, especially upon this important part of the nervous system.

If we have the sensory end organs already in a state of irritation, as the result of a lacerated wound or other cause, the impress of cold may be sufficient to set in motion the phenomena of tetanus. The irritation in the end organs and peripheral nerves is propagated to the delicate network of cells in the spinal system, and produces there an intense irritation that gives rise to hyperæmia, and the hyperæmia, on account of the excessive sensibility of these histiological elements, may of itself give rise to reflex spasms. The prompt disappearance of these congestions, before they have produced marked tissue changes, will explain the fact that some cases terminate favorably. The medulla oblongata is first to receive the impress of these irritations, not only because of the greater sensibility and more complex action of its nerve cells, but because of intimate connection with the sensory end organs. We know that when the functions of the medulla are depressed, as by lethal doses of opium and belladonna, we arouse the dormant powers by stimulants applied to the skin.

This intimate relation between the sensory end organs and the respiratory center, and the close anatomical and physiological connections between this center and the centers of the trigemini and facial nerves, will explain the tonic spasms of the face and jaw, the embarrassment of respiration and pain in the chest, with which the disease begins.

The area of diseased action extending in the medulla, and the nuclei of the hypoglossal, pneumogastric, glossopharyngeal and spinal accessory nerves, will occasion disorder of speech, deglutition, and still further embarrassment of respiration. The sweat center, and the convulsive center, participating in this disturbed nutrition, will give rise to characteristic phenomena.

The presence of sugar or of albumen, so often found in tetanus, is of interest in connection with this irritation of morbid action in the medulla.

We endeavored to ascertain why the "toy pistol" should have

resulted in so many cases of tetanus, and made experiments with the fulminate of mercury upon one dog and three cats. It was our impression that this agent might be especially irritating to the nervous system because of the close analogy suggested by Prof. Haines, in composition, between fulminic acid and hydrocyanic acid.

In these experiments, lacerated wounds of the paws were made, and in these wounds the fulminate was placed in various quantities. We made in all nine lacerations, and used the fulminate in every proportion from a minute quantity up to the entire amount of the fulminate found in a cartridge, and in every instance the animals recovered without showing any perturbation of the nervous system.

The great number of cases of tetanus is to be accounted for by the great laceration of tissue produced by the excessive amount of propulsive force due to the large quantity of the fulminate in the cartridge, and to the fact that the great majority of the wounds were in the hand, that part of the body that is most richly endowed with sensory end organs.

The theory of the pathology of tetanus demands, in the matter of treatment, careful attention to the wound itself; removal of foreign bodies; dilatation of wound where secretions are retained, and the local use of anodynes. The anodyne *par excellence* for this purpose is iodoform. Not only is it a very powerful local anæsthetic, but it has positive antiseptic properties. The wound, after proper cleansing, should be well packed with this substance.

The nerve leading from the wound should, if possible, be resected before the disturbances in nutrition in the centers have produced degeneration. Its success depends upon its promptness.

In our opinion, nerve section is preferable to nerve-stretching, because of its certainty in cutting off communication. If the stretching is not severe enough to arrest the functional activity of the nerve, it can do no good.

Dr. W. J. Chandler has gathered together (*Medical Record*, September 9, 1882) the reports of fifty cases of nerve-stretching in traumatic tetanus, with nine cures and three reliefs. Since this compilation, Dr. E. W. Lee, of this city, has stretched the

sciatic and crural, with immediate relief and subsequent recovery. Where the wound is so located that there is doubt about the peripheral connection, Liston's method, endorsed by Erichsen, of making a V-shaped incision about the part, so as to insulate it completely, may be advantageously followed.

The drugs in my judgment to be preferred are quinine, in full doses, alcohol and opium. Quinine, thus administered, diminishes the reflex activity of the spinal cord; it is a sedative to the circulation; it arrests the migration of leucocytes.

Mr. A. Poland (Guy's Hospital Rep., 3rd ser. vol. III) gives the record of twenty-five cases treated with quinine with seven recoveries. Dr. J. Jones, (*Medical and Surgical Review*) reports six cases treated with quinine, with one death. Dr. Hosmer A. Johnson successfully treated a case of tetanus following lacerated wound of thumb, with ten grain doses of quinine every four hours, and a case of trismus nascentium with one grain doses of quinine. Dr. Johnson was induced to use quinine in these cases because of a similarly successful experience of Dr. Herrick, of this city.

Alcohol in large doses is indicated, because it diminishes the reflex powers of the spinal cord, arrests to a certain extent tissue metamorphosis, produces sleep, reduces animal temperature, and acts as a nutrient.

Dr. Jones reports five cases of alcohol treatment, with one death.

Opium must be beneficial, because of its power of producing sleep and relieving pain, yet it must be used with caution, because of its primary stimulating effect upon the spinal cord, its tendencies to derange digestion and produce constipation.

The patient should be kept in a darkened room, free from all external irritation, and furnished with an abundance of nutritious food. The danger of death from asphyxia must be guarded against by the use, when necessary, of artificial respiration.

Tabular Statement of Thirteen Fatal Cases of "Toy Pistol" Tetanus, in Chicago during July, 1882—Ten other Fatal Cases occured, but the Physicicians who treated them would not report them.

No.	Age of Patient.	Sex.	SITUATION OF WOUND.	TETANUS DEVELOPED.	TREATMENT.
1	9	M.	In web between middle and ring finger.	After five days.	Chloral hydrate. Died on second day.
2	11	M.	Palmar surface of left thumb.	After four days.	Bromide potassium; gelsiminum; curara; morphia; salicylic acid. Died on third day.
3	9	M.	Palm of left hand between third and fourth metacarpal bones.	After eleven days.	Doctor was called when patient was dying. He had been treated with chloroform, cyprop-dium and valerian.
4	9	M.	Palmar surface of left hand.	After five days	Hypodermics of morphia. Died on third day.
5	9	M.	Palmar surface of left hand	After ten days.	Carbolic acid locally; chloral; bromide; nerve-stretching. Died on fourth day.
6	13	M.	Palmar surface of left hand	After eight days.	Bromide of potassium and chloral; ether spray to spine; chloroform; morphia. Died after four days*.
7	15	M.	Palmar surface of left hand.	After eight days.	Bromide potassium; nerve-stretching; hydrate chloral; morphia; calabar bean Died on third day.
8		M.		Free open'g of wound.	No medicine taken. Died on second day.
9	21	M	Just above right supra-orbital foramen.	After seven days.	Patient could not swallow. Gave 90 grs. bromide and 60 grs. chloral hydrate by enema. Died on second day.
10	27	M.	Palm of left hand near thumb.	After seven days.	Chloroform and hot baths.
11	13	M.	Palmar surface, first finger left hand.	After twelve days.	Carbolic lotions locally; chloral; bromide potassium and calabar bean. Died on eleventh day.
12		M.	Scrotum.	After five days.	Calabar bean and hot baths. Died on third day.
13	9	M	Palm of right hand.	After eleven days.	Bromide of potassium; calabar bean; chloral hydrate; ice to spine; salicylate of sodium. Died on second day.

* The doctor reports two cases in which the free use of opium and carbolic acid locally arrested a developing tetanus.

ARTICLE II.

MICRO ORGANISMS FOUND IN THE BLOOD OF A CASE OF TETANUS.

By Lester Curtis, A.B., M.D., Professor of Histology in the Chicago Medical College. Read before the State Microscopical Society, Oct. 27, 1882.

On Friday, July 22, I was asked by my friend, Dr. D. R. Brower, to see a case with him. The patient, a healthy German

boy, about fourteen years of age, had received an injury with a toy pistol on the Fourth of July. About ten days afterward, symptoms of tetanus appeared. The disease had continued unabated up to the time when I saw him, and the prospects for his recovery were anything but favorable.

While in the house I drew a drop of blood from the patient's finger, taking precautions to avoid the entrance of foreign substances, and examined it immediately with one of Gundlach's high angled, homogeneous one-eighths, of recent construction. To my surprise, I saw a number of strange bodies in the preparation.

The bodies had a rapid dancing up and down motion. The motion was often unrestricted, but confined to a small space. Sometimes while dancing up and down they would have a circular swinging motion, like that of a top about to fall. They then appeared as though fastened by a short thread to something below.

Occasionally they would dart across the field, knocking against the blood corpuscles in their way until stopped by some obstacle, when they might be turned out of their course to dart across the field in another direction, or they might stop and begin again their dancing. They would sometimes be lost to view, either to be seen no more or to re-appear again after a time, and repeat over and over again their complex motions.

On account of their rapid motion, it was impossible to measure the bodies, but they were roughly estimated at about one-tenth the diameter of the red blood corpuscles. At first sight they appeared to be round, but after a time it was seen that many, if not all of them, were elongated and constricted in the middle. Their tendency was to stand on one end; only rarely were they seen lying on their sides, unless when they were moving across the slide. At this time, on account of their speed, it was difficult to determine their shape with certainty.

Several times I saw the bodies in the freshly drawn blood appearing four-fold instead of double. At this time they would be folded upon themselves and appear as irregular quadrilateral figures. Their specific gravity was lighter than that of the serum of the blood, so that their tendency was to float to the top

of the preparation, while the heavier corpuscles sank to the bottom. Their number was not very great; usually not more than two or three were seen in one field of the microscope. It is probable that there were more of the bodies than were seen, for, as has been said, they frequently became lost to view among the corpuscles, and it was noticed that when the layer of blood was extremely thin and the corpuscles were separated by considerable intervals, the bodies were much more abundant than when the corpuscles were more crowded.

Besides these bodies the only specially noticeable peculiarities of the blood were a large number of very small red blood corpuscles, and a quite unusual number of fine pale granules. The granules were much smaller than the bodies that I have been describing, and often formed a complete layer between the corpuscles. They were pale, and seen with difficulty, and even then did not have a distinct sharp outline.

The observations were repeated on several different occasions, always with similar results. They were verified by Dr. Brower, and on one occasion by Dr. I. N. Danforth.

I carefully sealed up the preparations, so as to prevent the access of air and foreign matter, and took them home, where I could study them with a better light and better appliances than in the small bed-room of the patient. I then saw that the bodies had a tendency to grow. I also saw appearances as though they had cilia, though I cannot state positively that I actually saw such a structure. They seemed to have a tendency to attach themselves to objects in the field. Some of the blood corpuscles were surrounded by numbers of them. They were attached to the corpuscle by a pedicle. Occasionally I saw short chains formed of the bodies. These chains were sometimes floating free, sometimes one end was attached to a blood corpuscle, or some other object in the field. The chains were lashing actively. The joints in the chains seemed to be slightly smaller than in the dumb-bells first seen. In slides that had been kept for a day or so, the chains appeared to consist of ten or twelve links; but they never seemed to grow much longer.

I saw on one slide a large group of bodies somewhat larger than those first described. The last named bodies were uniform

in size and circular in outline. They appeared to be flattened a little from above, downwards. They reminded me of zoöglœa masses of spores, but I am unable to say positively that they were anything more than masses of very small blood corpuscles. I have always, however, found these small corpuscles extremely variable in size, and I have never before seen so many in one mass.

On several occasions I saw a body which looked like one of these last, with a short chain of three or four links passing out from opposite sides. This appearance seems to me to have some connection with the growth of the chains, but I have not studied them long enough to be positive about the matter.

After keeping the slides for a few days, the long chains were not found, but there were seen large numbers of bodies joined in twos or threes, and still moving. I kept the slides for a number of days, and saw the bodies moving after more than a week had passed.

I will also mention that I found what appeared to be the same organisms in the blood of a horse suffering from tetanus, but as I failed to get the blood free from contamination with saliva and dust, the observation has little value except as suggestive.

I may, perhaps, be pardoned for being somewhat elated at this stage of my observations at the prospect of a new discovery. But I am suspicious of new discoveries, and in order to exclude the possibility of the bodies being due to local causes, I examined the blood of the mother and sister of the boy, who were living in the same house with him. The mother was nursing a small baby, and was, of course, much worn by anxiety and watching over a boy whom she supposed might die at almost any moment. Otherwise she was in good health, and her powers of endurance were unusual, for notwithstanding this strain, when she was relieved of her anxiety she soon became as fresh and well as ever. The sister appeared to be in perfect health. The blood of these persons, on examination, showed the same forms as were seen in the blood of the boy, and in about the same numbers. My air-castle was therefore dashed to the ground.

In time the boy recovered his usual health. Since his recovery I have examined his blood twice, at intervals of three or four

weeks. When last examined the bodies were still present in about their former numbers.*

Looking around to discover, if possible, the source of these bodies, I noticed a pond of stagnant water in a vacant lot next the house. The pond contained organic matter, in a quantity and of the quality that duck-ponds in a city usually do. I collected some of this water, and found in it similar forms in great abundance, and in all stages of development.

The question that remains to be settled now is, what shall we consider these bodies to be? There are several sorts of bodies that might be found in this situation.

I cannot believe that they are foreign bodies. I have been for several years in the habit of studying blood from all sorts of people, and in all sorts of circumstances, often with no special precautions against the entrance of foreign matter, and have never before, except in perhaps one doubtful case, found any such bodies in the blood. Foreign bodies would scarcely have the uniformity of appearance and size that these bodies have, and we would expect them to be absent occasionally; or, at least to vary greatly in numbers. These bodies were remarkably uniform, both as to size and numbers.

Fat is also sometimes found in the blood, and it might be supposed that these were particles of fat. But particles of fat would not be likely to be so uniform in size, nor so constant in all the varying conditions of the patient, from that of severe and protracted illness to perfect health, and least of all would it be likely that the conditions for the production of fat in the blood should be so similar in persons so different in health as the three in whom the bodies were found. Fat also would have a refractive index not so near that of the blood serum, and it is inconceivable to me that fat should have the shapes that have been described.

It is sometimes possible to see in a white blood corpuscle, especially after it has been drawn from the body for some time, large numbers of granules. These are often seen to be moving. I have, in another place, said that "the movements of these gran-

* At the reading of the paper, the boy was present; blood taken from his finger at that moment showed the bodies, which were seen by most of those present.

ules seemed to be independent of each other, and reminded me of small animalcules imprisoned in a narrow space. By fixing my attention on one of them, and watching it for some time, I have seen it change its location and travel nearly half across the corpuscle before escaping from view." They may often be seen to escape from the corpuscle, sometimes singly, occasionally in great numbers; then they appear as granules in the blood. The general appearance of the granules resembles that of the bodies described, more than any other structure that has been mentioned, but differs from them in several respects.

The granules are single; although I have studied them for years, I have never seen them assume the dumb-bell shape. The refractive index of the granules is less than that of these bodies. And especially, however active their motion within the corpuscle may have been, they are always still, when seen free in the blood, as are all the bodies that have been mentioned. It is true that any or all of these bodies may have that peculiar motion called Brownian. This motion is often very evident if the particles are small and the layer of fluid is thick. But it is only a monotonous tremor without variety and without change of place.

As to the nature of these bodies, I will only offer some quotations. Nägle, quoted by Magnin, says: "There are but three distinctive signs which enable us to recognize with some certainty that granules under observation are organisms—spontaneous movement, multiplication and equality of dimensions, united with regularity of form. The most certain character is movement in a straight or curved line—a movement which inorganic granules never present."

Cohn, whom most of us will recognize as authority, says: "The distinction of pseudo-bacteria from veritable globular bacteria is a problem which our microscopists cannot resolve in every case with the desirable certainty. It is only by a study of their mode of development that this distinction can be made. The globules which divide and develop in the form of chains are organized beings. When this does not occur we are dealing with pseudo-bacteria."

Before leaving the subject, I will mention one other form that I have in a few instances seen in the blood after the slide had

been kept for two or three days. This form consists of rods of nearly the length of the diameter of a blood corpuscle. The rods were usually joined in pairs, sometimes in threes. They were seen traversing the field, in the direction of their length, with a steady gliding motion, quite different from the jerky rapidity of the first bodies. They would often stop without apparent cause, and glide back again. Occasionally they were seen lying quietly at rest, when all at once, without any provocation, they would begin the motion that has been described.

Sometimes the moving ones would stop gently, either from coming in contact with some obstacle, or of their own accord, and remain at rest. As to the nature of these rods, whether they are a phase in the development of the bodies first seen, or whether merely foreign substances which effected an entrance while making the preparation I have not, up to the present time, been able to determine.

1558 Wabash Avenue.

DESCRIPTION OF THE FIGURES.

b. The bodies as seen when turned on their side.

c. One of the four-fold bodies occasionally seen.

d. The chains as seen after a day or two.

f. Zoöglea-like mass.

e. One of the bodies mentioned in the text with the chains passing out from its opposite sides.

a. Blood corpuscle for comparison.

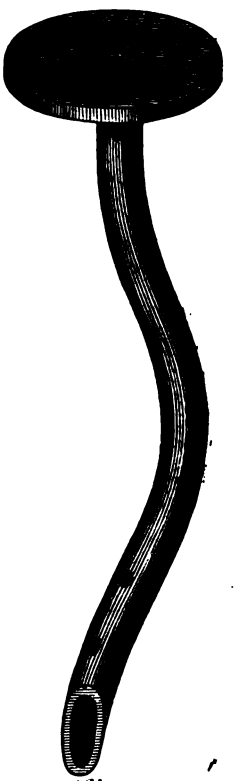
g. The rod shaped bodies mentioned in the text.

The size of these figures is estimated by the eye alone.

ARTICLE III.

A SIMPLE SUCTION DRAINAGE TUBE FOR SUPPURATING PLEURAL CAVITIES. By EDMUND ANDREWS, M.D., LL.D., Professor of Clinical Surgery in Chicago Medical College.

Air admitted to a suppurating pleural cavity is perfectly innocent, if accompanied by a proper carbolated injection. This truth, which I am prepared to sustain by numerous cases in practice, dispenses at once with all the laborious plans recommended in our authorities for the purpose of excluding the atmosphere from suppurating pleuras.



In saying that air thus carbolated is innocent, I mean only that it produces no objectionable septic or chemical effects. It is desirable, however, that a moderate portion of it should be withdrawn, so as to keep up a partial vacuum in the thorax, whose suction shall tend to hasten the expansion of the lung and bring it sooner into contact with the walls of the chest, thus shortening the treatment and preventing the ordinary contraction of the thoracic walls.

An ingenious, but clumsy plan was devised for this purpose by Goodhart, of Guy's Hospital, London (*Guy's Hospital Report*, 1877). He inserts a long rubber tube into the chest, and lays the outer end in a vase of water set upon the floor beside the patient's bed. The column of pus thus running downward, acts by its weight to produce a slight suction in the pleural cavity, and thus tends, to a trifling extent, to expand the lung. The great objection to the plan is that the patient cannot walk about, nor even turn freely in bed. Dr. Goodhart found it to drain but imperfectly in nearly two-thirds of the cases. Bryant condemns the plan, and most surgeons who

use the pleural tubes at all, give up the attempt to produce a vacuum. An ingenious plan of a tube with valves and other attachments was published by another author, but seems to have fallen out of notice, probably on account of its complexity.

M. Chassaignac, so often quoted in this connection, made no effort to secure a vacuum, but only tried clumsily to prevent his tubes falling into the cavity. To this end he inserted a tube at one intercostal space, and bringing it out at another, he tied the ends together.

An accident called my attention to the fact that very powerful suction can be produced by very simple means. Desiring to have a flange on the outer end of the tube to prevent it from slipping completely into the cavity, I took a rubber tube and split the extremity for three-quarters of an inch. Putting the split end through the center of a disc of gutta-percha, I turned the two ends over on the disc and secured them by cementing another perforated disc of hot gutta-percha upon the top, thus holding the two halves of the rubber tube cemented between two discs of gutta-percha. After it was cool, I made traction on the tube, and found it so firmly attached that I considered it safe. Making an incision, and placing the tube in the patient's chest, I evacuated a large quantity of pus, the tube extending into the cavity, and the disc resting against the skin. At the close of the evacuation the air began to enter the tube at each inspiration. To prevent this, I placed my finger on the orifice of the disc during inspirations, but removed it during expirations, to allow the pus and air within to be expelled. In a few moments there was a strong suction on my finger at each inspiration, and lifting it, I was horrified to find the rubber tube being pulled from its hold between the gutta-percha discs. I pulled the disc away and saw the end of the tube slip out of sight under the skin. I plunged my finger after it, and just succeeded in pressing the rubber so firmly against the edge of a rib as to stop its progress, and then hooking a tenaculum into the rubber, through skin and all, I held it until it could be seized and extracted by forceps.

This accident showed how easy it is to produce a considerable vacuum in the chest without any complex apparatus; but it also showed the need of a better tube. To meet this necessity, E. H.

Surgeon & Co., 137 State street, caused to be manufactured a quantity of tubes like that shown in the figure. The tube and flange are all one piece of soft rubber, strong enough to resist any suction they will ever meet.

This tube can be made to produce and maintain all the vacuum required. To this end a small cork should be cut to fit the orifice in the flange. After syringing out the chest with carbolized water, of the strength of one part to forty, sixty or eighty, whichever the surgeon may find sufficient to disinfect the case in hand, the patient is directed to draw in a full breath. He must then "hold the breath"—that is, close the larynx, and "press" or "bear down"; that is, make a strong expulsory effort with the larynx closed. This will drive out a large part of the air, and the remainder of the carbolized injection from the cavity. Now, pressing the finger on the orifice, let the patient draw in a new breath, and again removing the finger, repeat the expulsion. One or two forced efforts will make a pretty strong vacuum; or, if preferred, the surgeon can get up one nearly equal to it without any co-operation of the patient, by continuing for ten or fifteen breaths to apply the finger during inspiration, and remove it during expiration. When the vacuum is sufficient, the cork should be inserted, and antiseptic dressings placed over all. The soft rubber flange acts as an air-tight valve against the skin, and the cork controls the orifice, so that no air can enter, and the vacuum will still be found exerting its power at the next dressing.

I think no effort should be made to obtain a very strong suction, lest it induce a possible hæmorrhage.

My experience in drainage tubes and carbolized injections for suppurating pleural cavities has been very favorable. Patients exhausted with hectic and suppuration return rapidly to health and strength, and go about their business, fat and ruddy, long before it is time to take away the tube, even when no suction is attempted. Exact statistics do not exist, within my knowledge, to show the amount of success of the vacuum plan, but, arguing on general principles, the rapid expansion of the lung could not be otherwise than beneficial. It will surprise me if so simple a device as the flanged soft rubber tube has not been already used; but, in a hasty search among authorities, I have not been able to

find it mentioned, except in the valved or stop-cock form. However, the question of priority is of trifling consequence. The important point is to show the profession that with this simple tube, and a bit of cork, they can effect a continued suction upon the collapsed lung, and rapidly bring it out to the walls of the thorax. The same tube is useful in other large abscesses of various kinds. I placed one, not long since, in an abscess of the lung itself, which contained over half a pint of horribly offensive pus. The result has been surprisingly beneficial, the patient coming back almost from the gates of death under the use of daily antiseptic injections. However, the vacuum plan is not needed in this case, perhaps, and if so, an ordinary tube would have answered the purpose; but in cases where the pus occupies the pleura and collapses the lung, the faithful use of the vacuum tends to expand that organ and to prevent the formation of those chronic caverns, which sometimes require the resection of ribs for their care.

No. 6 Sixteenth St., Chicago.

ARTICLE IV.

AGORAPHOBIA. A Contribution to Clinical Medicine. By L. T. POTTER, B.L., M.D., Clinical Lecturer on Diseases of the Chest, South Side Dispensary, Chicago, Ill.

My attention has recently been directed to an article in *The Popular Science Monthly*, by M. Bill, whom I take to be a Parisian physician of some celebrity in psychological pathology, for he certainly evidences in the subject he treats, viz.: "Delusions of Doubt," a mental erudition which amply justifies my conclusion.

In the realm of psychiatry, we are constantly discovering new and untrodden paths for investigation which demand our most careful attention and thorough research.

If, by any process of mental application, either with or without mechanical aid, we are enabled to discern in the labyrinth of cerebral pathology any new fact, we will have been more than

rewarded by the finding, in that we will by just that much have increased our own knowledge and added to the literature of psychiatry; an achievement worthy of our most intent emulation.

Last winter, while reading, during my leisure evenings, "A Physician's Problems," by Chas. Elam, M.D., M.R.C.P., I was much impressed with the chapter on "Illusions and Hallucinations." The impression has been an enduring one, and I should do Dr. Elam an injustice if I did not add, that I consider him one of the most original and erudite writers with whom it has been my pleasure to enjoy an hour's literary treat after a hard day's work at the bedside practice.

But let us turn to the case which prompted this little monograph.

Last August, while taking my summer vacation, I was consulted in Providence, R. I., as to my opinion upon a case of peculiar and somewhat rare mental disease. Was it an example of so-called "conscious insanity?"

The history of the case is as follows:

Mrs. D., æt. forty; brunette; nervous temperament; has had but one child. Is unable to state just when she first noticed symptoms of her disease. When taken into a railway car, so intense was the agony of her situation after the car was in motion, it seemed as though she would die. Repeatedly had she attempted journeying by rail, only to be compelled to get off and ride by carriage the remaining distance

The sensations experienced she described to be, when the car was moving, as though she was being swung from a precipice. If her attention is attracted by some one speaking to her, the sensation leaves her in a moment; only, however to return again in another moment. She gasps one moment and laughs the next. Is always much worse a week before her menstrual period.

For years she has been obliged to forego the pleasure of traveling by rail, and resort to conveyance by horse, when wishing to visit a point inaccessible by water. Never experiences any difficulty when traveling by water. The sensations referred to are produced only when in a moving railroad car.

She had observed that some individuals seemed capable of exerting a quieting influence over her on these occasions, while

other persons had the opposite effect; an illustration of psychological control; the stronger intellect controlling the weaker.

Loud music in church or concert halls was unbearable to her. She remembers, as a little child, when exposed to a current of air, to have experienced symptoms of a nervous character, which I should judge simulated chorea. As she approached puberty, her symptoms improved, but the improvement was not of long duration.

After the death of a favorite cousin, her nervous symptoms increased; appetite became impaired; depressed in spirits; was wakeful at night, and if perchance she did fall asleep, would awaken tired and unrefreshed. She has noticed that if interested in something which required close mental application, she does not feel the morbid sensations.

Having consulted many physicians in Providence, and taken much internal medication, with no alleviation of her sufferings, she at length came under the care of Dr. G., a prominent surgeon, also of Providence. He seemed much interested in her case, and after having made a most careful and painstaking examination, concluded that some of her symptoms, if not all, were due to an abrasion or laceration of the mucous membrane of the os uteri. With this conception of the etiology of her trouble, he made local applications to the cervix and os, and the patient's symptoms steadily improved. This was about two years ago; since which time she has been able to sleep and eat very well.

Still, even at the time I saw her, she was unable to travel without some trepidation. A bottle of valerianate of ammonia, and a flask well filled with brandy, were always her constant companions when undertaking a journey by rail.

An amusing side of the case lies in the fact that when she is traveling, she invariably sits with a brandy flask in the right hand, and her Bible in the left; presumably the one counteracting the influence of the other.

The interesting question which suggests itself to every thinking mind, when brought in contact with a rare neurotic case like this is: "What is the cause?" Having once clearly determined that, the success of our subsequent treatment is assured.

Did the last physician this lady employed find the correct solution of a disease which had given rise to years of suffering, both

corporeal and psychological, to the patient, and baffled the skill of her former medical advisers?

I am strongly inclined to believe that the lesion of the cervix uteri at the os was, if not the origin, in a great measure an aggravating factor, which, until relieved, prevented a complete recovery. Does not the very fact that she improved so steadily by the use of local applications, with internal antispasmodics, go far to favor this theory? It appears to me it does, beyond any peradventure or doubt.

Just as trifling a cause has been known to give rise to a *grand-mal*. All of us have known of instances where an adherent prepuce has given rise to convulsions, epilepsy, etc. The constant irritation at the periphery of a nerve filiament has been recognized as the cause of tetanic spasm. Cases might be multiplied as exemplifying this theory.

But now, if I am asked the more difficult question, *how* it comes to pass that such apparently insignificant lesions are capable of producing such serious effects, I must confess my ignorance. I willingly refer you to some recondite neurologist, to whom the answer is probably as clear as the differentiation between pleuritis and endocarditis is to you or me.

There is a lesson of wide application to be learned from the history of a case like this.

Can we search too carefully for the cause in any obscure disease? There is no truer aphorism than this: "The success of the medical practitioner depends upon a thorough knowledge of the *little* things in the practice." It is also none the less true that the success is all the greater when achieved through the medium of a brilliant diagnosis. He who, by carefully weighing and digesting the facts attainable in any given obscure case, is enabled by his closer mental application and acumen to discern correctly and intelligently the etiology of the aforesaid complaint and [illegible] rectify it, deserves as much, yea, more honor and praise from those of us engaged in the active practice of medicine, than [illegible] unfortunately, too readily bestowed upon some surgeon who has operated with the knife, possibly far more skilfully, but with much less intellectual effort.

ARTICLE V.

THE ACTUAL CAUTERY IN CANCER OF THE UTERUS. By O. STROINSKI, M.D., Chicago.

There are two essential points in cancer of the uterus, which have been hitherto entirely ignored by gynæcologists, and which play an important role in the surgical treatment of this disease. (1). In medullary carcinoma, which is by far the most frequent form of cancer of the uterus, the os-internum is the rubicon which will be seldom passed, either by the cancer of the cervix or by that of the body. (2). In cancer of the cervix uteri there is œdematous sw.lling of the vaginal wall around the cervix so that the os-externum and the vaginal walls are on a level plane. Ruze and Veit, in their excellent monograph on cancer of the uterus, lately published, have given full attention to the first point. They say that medullary carcinoma, while mostly originating from the glands of the uterine membrane, will be found located either in the body or in the cervix, and that total extirpation is an uncalled for operation, the results being very unfavorable, and amputation of the upper segment being preferable in cancer of the body. I do not think total extirpation of the uterus a suitable operation for cancer of the cervix uteri—every surgeon may settle this question with his own conscience—there being operations less difficult, and prolonging the life of the patient without risk. Amputation of the cervix would be the operation *par excellence*, but the above named swelling of the vaginal walls impedes the operation and makes its performance often impossible without injury to the bladder. And there is yet another point to consider. The cancer of the cervix, while mostly not transgressing the os-internum, invades that part of the cervix which is situated above the vaginal portion of the cervix. German physicians practice, therefore, the funnel-shaped excision of the cervix, and English surgeons scrape out the uterus and apply caustics. The funnel-shaped excision and the scraping out the uterus with the sharp spoon removes a great deal of healthy tissue which would be used as a stratum by

the advancing disease. A second operation is hereafter impossible on account of the scarcity of tissue. The caustics, as chromic acid, chloride of zinc, sulphate of zinc, bromide and chian turpentine, which latter is entirely ineffectual, attack the walls of the vagina in the same degree as the uterus, while liquidated in contact with the uterine membrane or tissue. The application of these caustics is also very difficult, it being often impossible to bring them in contact with the diseased part. The actual cautery (ferrum candens) has been in common use in Germany and other parts of Europe. The method which I have adopted after several trials with other operations, is as follows: The index finger is introduced into the cervix, and as much as possible of the growth is removed by the finger. I then take a blunt spoon and scrape out all of the diseased tissues until I feel the muscular coat. From the latter I scrape off the superficial layer, and I then remove the spoon. I then apply the hot iron three or four times, each time examining with the well-oiled finger. From this time on I watch the patient carefully. If there is any new growth, or if the patient complains about sensations usual to this disease, I apply the cautery again. The thermo-cautery of Paquelin I do not use on account of the adhering blood and tissue to the instrument, which makes its use ineffectual. I have the advantage by this method to operate as often as I think it necessary, and I have no loss of healthy tissue. In cautery, I have seen new healthy growths in places where there has been decayed structure. I can furthermore apply this method in cases where the os-externum is apparently in healthy condition and the seat of the disease is located near the os-internum. The women are but the first time afraid of the hot iron, but after they have learned the good effects of it they willingly undergo this but little painful operation. It is necessary to have several irons, the first being always covered with blood and tissue. The application can be easily made in the office, and in order to use it on the diseased point it is necessary to examine the cervix carefully each time. The vagina is not in the least affected, even by taking a common double-bladed speculum. I will relate here but one case, which will show the efficacy of this method.

Mrs. N., fifty years of age, had ceased to menstruate five years ago. One year afterward a severe hæmorrhage set in, which recurred at intervals. Three years ago a fetid liquid began to be separated from the genital parts, and the last three months she was constantly in bed. When examined by me, the woman was exceedingly anæmic and cachetic, pulse 135, hardly perceptible, high fever, especially at night, with intense thirst. She could sleep but one hour at nights. The cervix uteri was wide open; the lips of the vaginal portion thin and flabby, above the vaginal portion in the upper part of the cervix there was a friable growth extending to the os-internum, and filling out that part entirely. The growth was removed by the finger, but the spoon was not used on account of the thinness of the walls. The least force would have opened the sac of Douglas; I applied the hot iron twice, but superficially, and after a week I repeated the application. After two months treatment, the fever and pains were gone and the fetid fluid had changed to a thick, inoffensive liquid. Now after four months the woman looks healthy and has no trouble whatever. In this case, which on account of the serious circumstances, was refused by other gynæcologists to be operated on, no other method could have been applied without injury to the patient.

ARTICLE VI.

CHRONIC CYSTITIS IN THE DAUGHTER; FIBROID POLYPUS OF THE BLADDER IN THE MOTHER; EXTIRPATION; LACERATION OF THE BLADDER; SUTURE; RECOVERY.

By O. STROINSKI, M.D., Chicago.

Mrs. L., a young woman twenty-one years of age, was married about three years ago. When pregnant, in the fourth month, she noticed pains in urinating, and some blood escaping after the passage of urine from the bladder. The pains became intense in the fifth month of pregnancy, but no remedy was of any avail. After confinement, the pains subsided entirely for six weeks, and then reappeared in the old manner. Now, sixteen months after the birth of the child, the pains are intolerable. The woman is

a healthy-looking person of medium size; all the organs of the upper body are in healthy condition, and the functions of the body are perfectly normal, except that of the bladder. The uterus is retroflected, and the walls of the bladder intensely painful in examination. There is chronic cystitis of the bladder, resulting from active hyperæmia of the organ, which latter is so often found in pregnant women with a retroflected uterus. Three injections into the bladder of a strong solution of nitrate of silver, 10 to 100, were made, the organ having been emptied previously by a male catheter, at intervals of four days, and the bladder was washed each time with lukewarm salt water. The pains have entirely disappeared, and there is no escape of blood. The speedy cure of the daughter induced the mother, a refined lady of forty-six years, and lately arrived from Europe, to consult me about her complaints. She has had the same troubles when pregnant with this daughter, her first child, and she has suffered more or less during the last twenty-five years, especially when pregnant. In the last six months the pains became labor-like, and they were of so painful a character that she hid herself in some remote place, that her moans might not be heard by the family. The woman is a little taller and stouter than her daughter, but she told me that she had lost a good deal of flesh in the last year. The uterus is retroflected, as in the daughter. The walls of the bladder are also painful, as in the daughter, but the sound strikes against a foreign body on the anterior wall of the bladder. This body is movable, but it will be found always in the same place when attacked from one or the other side. I rapidly dilated the urethra with the index-finger, and the finger also detected a moveable body. That this foreign body was not a stone in the bladder the symptoms would readily show, and the introduced sound could not feel a hard body giving the characteristic clink of the stone, but a soft body moving from one side to the other, but being attached with its basis to the bladder. The diagnosis was therefore polypus of the bladder. The mucous membrane of the bladder could be easily displaced from its muscular layer in some parts, a circumstance which aided me a good deal in the coming operation. With the assistance of Dr. Patzer, a surgeon lately arrived from Russia, I chloroformed the patient, and then

dilated the urethra as before. A Simon's curved forceps was introduced, and after several attacks the short and dense pedicle of the growth was seized within its blades. About ten rotations were necessary to remove the growth, which was of the size of a walnut, and of dense fibrous structure. I then injected a moderate quantity of lukewarm salt water, but which could not be withdrawn. The woman suddenly collapsed, and on palpation of the abdominal walls, there could be detected a quantity of fluid in the abdominal cavity. The bladder had ruptured; or, to use the proper technical term, it was laccrated by the tractions on the fibroid. By pressure on the abdomen with a tight closing syringe in the bladder, I was able to remove a large quantity of the fluid. The woman rallied. I introduced a permanent catheter, and left the woman in comfortable circumstances. On account of the rare occurrence of spontaneous healing in a ruptured bladder, and in consideration of the age of the woman and the peculiar condition of the walls of the bladder, I thought it necessary to suture the bladder, and to effect thus a closure of the rent. Through the vagina I could not operate, the laceration being on the anterior part of the bladder, and I was therefore compelled to make a complete inversion of the organ through the urethra. The mucous membrane near the sphincter, which could be easily displaced, I inverted first, and I laid two ligatures through this part. By pulling on these ligatures, and assisted by Dr. Patzer, who made a strong pressure above the symphysis upon the bladder, I effected a complete inversion. The mucous membrane was in a state of chronic inflammation, and the walls around the removed tumor were exceedingly thin. Here was a rent two cm. long, and in diagonal direction. Three carbolized silk sutures sufficed to close the aperture. The reduction of the bladder was easily effected by a repositor. A lukewarm injection of salt water was made, and the liquid did not enter the abdominal cavity. A permanent catheter was kept *in situ* for two weeks. The woman has now entirely recovered. She has no pains in urinating, and there is no show of blood. The retroflexion was treated with the usual pessary. Fibroma of the bladder is a rare occurrence, and it will be found only after long-continued inflammation.

Society Reports.

ARTICLE VII.

AMERICAN DERMATOLOGICAL ASSOCIATION. Proceedings at the Sixth Annual Meeting, held at Newport, R. I., August 30 and 31, and September 1, 1882.

FIRST DAY'S SESSION.

A business meeting was held at 9:30 o'clock, with closed doors, at the commencement of the morning session. At ten o'clock the regular session began with the Annual Address by the president, Dr. Hyde, of Chicago, which he read, as follows:

Gentlemen of the Association: It becomes my agreeable duty to utter a few words of greeting and welcome at the opening of the sixth annual meeting of the American Dermatological Association.

The mere announcement of this fact suggests to us that this is an occasion for congratulation. The survival, for even this relatively brief period of time, of any special Association of American physicians, ought in some measure to demonstrate that it had occupied its ground and was giving promise of a future. But when such an Association is in position to give a good account of work actually accomplished, surely this supplies both a reason for its existence and an argument for its perpetuity.

Five years do not, it must be admitted, furnish a measure of time on which to predicate maturity, but five years of dermatological work in these days of intellectual activities and scientific appetite, five years of this work done in an Association without a predecessor, and in the absence of a precedent, five years of such work in a country where the special cultivation of the field is of

comparatively recent date, this may indeed be a source of profound satisfaction. During these few years of its existence, this Association has been in actual session for less than a fortnight altogether, yet the labor which it has stimulated, the influence which it has exerted, and the position which it has attained, both in this country and abroad, as a body of scientific colaborers, all these are to be estimated by another standard than that merely of time. Were its work to be concluded with this session, and the last paper to which it should listen be that read on the closing day of this meeting, I should find no fewer reasons for congratulating you on the results accomplished in these five years of labor. No man could sit down to-day to write the history of the progress of medicine in this country for a similar period, and omit to mention the contributions to its literature directly and indirectly made under the auspices of this Association. No man could sit down to-day to trace the progress of medical education for a similar period in these United States of America, and be silent upon the increased attention given to the study of cutaneous diseases in our schools of medicine. A large part of this, indeed, is due to the presentation, on the part of this Association, of the claims of such study to a higher recognition, based not merely upon the attractiveness and interest which it always awakens, but upon its essential importance.

Five years ago, many of our recent graduates in medicine recognized eczema only as a vesicular disease, and their armamentarium for cutaneous maladies was restricted to arsenic for internal use and the benzoated oxide of zinc ointment for topical employment. To-day, many even of our undergraduates who have not yet passed their final examination for a degree, can distinguish between the varieties of lupus, can point out the lesions of pediculi on the skin of the syphilitic patient, and can affirm that this or that eruption is of artificial origin. I do not think that it is claiming too much to hold that for this improvement and promise, the influences exerted by this Association are in part responsible.

Reviewing, then, even for this relatively brief period of time, the results actually accomplished by the American Dermatological

Association, it occurs to me that we can find reason for congratulation in the following facts:

First. The ground has been occupied. The Association has demonstrated its existence and its capabilities of usefulness to the medical profession of the country. It is here recognized as solely assuming to limit its membership to experts in the field which it occupies; and its proceedings have attracted an attention and been awarded a meed of authority largely proportioned to these conditions.

Second. It has avoided dangers which beset the path of many ventures and experiments. It has assumed no financial obligations which it was not in position to redeem. It was, at the time of its first organization, fortunate in the adoption of a sufficiently simple scheme of self-perpetuation and procedure, in consequence of which it has been enabled to escape the burden of an elaborate and complicated system of rules. It was, moreover, in no haste to enlarge its membership, wisely preferring that its portals should be opened to those only who had previously demonstrated their special fitness for such honor. It has also escaped the dangers incidental to bodies composed of an equally limited number of men acknowledging a community of interests and actuated by similar motives. Its discussions have never lacked virility, and that degree of divergence of opinion and practice which will always characterize the disciples of true science, so long as there subsists the recognized proportion between the known and the knowable, the attained and the attainable. That upon which we all agree, probably bears an increasing ratio to that upon which we all differ, and with this every scientific Association must perforce for the time be content. When the representatives of these bodies are upon all points agreed, then the reasons for their corporate existence are reduced to the level and scope of a mere sentiment.

Third. The transactions of the Association bear witness to the creditable amount and character of the work performed by its members, both within and without the limits of its sessions. The line of thought in which your attention is thus directed, has been in part suggested by the fact that you are this year to receive the consolidated report of the chairman of the committee on statis-

ties, covering the entire period during which those statistics have been in course of collection. This report will be fully presented by the first president of the Association, to whose address on the occasion of its first meeting we are indebted for the suggestion, subsequently formally adopted and set in force, relative to the organization of that committee. This report will inform you that we have collected the statistics relative to no less than sixty thousand cases of cutaneous disease, a larger number than has been heretofore tabulated in any country. The value of these figures, collected as they have been from many and distant parts of the same country, can scarcely be overestimated. It is difficult to believe that the permanent chairman of this committee, when his project first assumed definite shape, could have realized how rich would be the results obtained within the time thus far devoted to the work.

Making exception of the remarks made introductory to the last meeting, your presidents have on four occasions made annual addresses, whose value I need not determine for you, who have not only listened to them, but have also read them, as they were printed in full in the annually published volumes of transactions. Glancing over the other papers regularly presented to the Association, we find that they can be properly assigned to each of the several classes, that of the Neuroses alone excepted, which we have recognized in our nomenclature and classification of diseases of the skin.

Of those not assignable to such classes, three papers relate to the general subject of anatomy; three to general pathology; two to general etiology; three to general, and two to special therapeutics of the skin.—(13).

In Class I, including disorders of the glands, one paper has been presented upon seborrhœa, and two upon molluscum sebaceum.—(3).

In Class II, of the inflammations, we have thirteen papers to tabulate. One, on dermatitis traumatica; four, on dermatitis venenata; one, on herpes progenitalis; one, on psoriasis; one, on lichen planus; two, on eczema; one, on prurigo; one, on acne; and one, on impetigo herpetiformis.

In Class III of the hæmorrhages, we have to record a single paper.

In Class IV, of the hypertrophies, we record one paper on papilloma, which may be properly registered under the title of verrucca; three, on hirsuties; two, on scleroderma, and one, on rosacea.—(7).

In Class V, of the atrophies, we record one paper on vitiligo, and two on atrophia pilorum propria.—(3).

Class VI, of the new growths, includes the largest number of subjects to which our attention has been thus directed. The figures are: angioma, 1; angioma pigmentosum et atrophicum, 3; lymphangioma, 1; scrofuloderma, 2; syphilodermata, as to the chancre, 1; as to the nature of the constitutional disease, 1; as to its cutaneous and other lesions, 9; lepra, 4; and sarcoma, 2. —(24).

Class VII, of ulcers, includes a single paper.

Class IX, of the parasitic affections, covers five papers, all relating to the vegetable parasites. There are seven papers, including one report, on subjects not embraced in our classification. Of these, two relate to diseases of the mucous surfaces; two, to ainhum; one, to pityriasis maculata et circinata; one, to a rare form of multiple cutaneous tumors, accompanied by severe itching; and one, to a singular form of tuberculo-vesicular lesions of the skin. The total number is sixty-seven.

Many of these contributions were illustrated by the exhibition of oil paintings, sketches, pathological specimens, or sections mounted for microscopical examination. In a few instances, patients affected with diseases under discussion, have also been presented. Medicinal substances and apparatus for the relief of cutaneous disorders by topical application, may be named in the same connection.

With few exceptions, these papers have been published in dermatological or general journals of medicine, and taken together they constitute a mass of literature, which the American School of Dermatology may claim as distinctively its own, and for which the scientific world is richer. It represents the advance of knowledge in this department for the period which it covers.

Mention should also be made of a series of minor papers or

reports, embodied annually in the report of the chairman of the Committee on Statistics, many of which, either wholly or in part, have appeared in our transactions.

The regular annual statement of the contributions to dermatological literature, by the members of this Association, and at the outset by others also who had in the past to some extent exhibited an interest in this or allied subjects, has demonstrated its value. Some of the titles here collected are very naturally represented also upon the programmes of our meetings, but this is true of less than one-seventh of the entire number.

Here we have tabulated more than three hundred original papers, clinical notes, reports of cases and analyses of dermatological statistics; more than one hundred reviews and critical notes of treatises on diseases of the skin; twelve atlases, lithographic and photographic, depicting cutaneous disorders; twelve volumes of original authorship, inclusive of one translation; fifty series of digests and periodical reports of the progress of dermatological science; and more than sixty lectures, clinical and didactic, on the same subjects.

The larger part of this work has been accomplished by members of this Association, under its immediate influence. All of it has been the fruit of American research and observation.

Fourth. A final cause for congratulation may be recognized in the fulfillment of the other purposes of the Association, as these are set forth in the address of its first president, read at our first gathering. These relate to the fostering of an acquaintanceship, to say nothing of the resulting friendship, between gentlemen of distant parts of the country, each of whom, however otherwise made familiar with the special work accomplished by each other, would, without the facilities afforded by the meetings of this Association, be to that extent isolated in his professional labor and interest.

With this fair showing for the past, we naturally turn to the future. It is impossible to doubt that this Association gives a promise of usefulness to its members, and in a scarcely less degree to the medical profession of the country, whose realization will be indeed precious. By pursuing the same straight and simple path which it has heretofore recognized as safest, making sure of

its facts and securing the results, with a cool disbelief for that which can not be shown to be worth accepting, it surely needs no great change in either its purpose or policy to reach the desired end.

We can, however, with profit, constantly ask in what directions and by what methods may we further develop our resources and enlarge our opportunities?

There are a few suggestions which occur to me in this connection, no one, probably, new to any of you, all of them having been, I think, at various times the subjects of discussion.

The first relates to giving some prominence upon the annual programme to a definitely fixed time, to be specially devoted to the exhibition of specimens, mounted sections, medicinal substances, drawings, etc. We have already made a step in this direction. By giving more attention to this allotment of time, it seems probable that not only the number of articles annually exhibited might be increased, but also that medical gentlemen of recognized position and attainments, even though not members of the Association, might be glad to make occasional contributions of this character. The time may not be distant when the Association will be ready to preserve the specimens thus gathered in a pathological collection. I do not know that we are yet ready to invite respectable drug manufacturers to exhibit to us the preparations placed by them upon the market, for use in the treatment of cutaneous diseases, but I am confident that we have faith in that American enterprise and ingenuity which have solved so many of the problems with which the old world had previously taxed itself in vain. Upon a single occasion, you will remember that I took the responsibility of inviting a communication of this character, which was received by the Association with a vote of thanks.

Second. It has at times occurred to me that a clinical, pathological or therapeutic portfolio might be annually opened at these meetings with advantage to us all. Such a portfolio might be permanently entrusted to the charge of a single member, or its holder might be annually selected for one year's service. It should contain voluntary or solicited contributions from the various members of the Association, of a shorter character and

less elaborate form than those expected of papers regularly announced upon the programme. These would naturally be memoranda of clinical observations, brief illustrations of new or old therapeutic measures, notes on the coincidence or succession of cutaneous diseases, etc., fragments which considered either *per se*, or in mutual relation, would prove interesting and often valuable. I have been struck with this when corresponding with members of the Association, some of whom have been requested at random to communicate their experience upon certain points. Even the negation of such experience may, in such cases, prove a matter of importance. We have not rarely had members present at these meetings who have not contributed papers. This, certainly, has not been due to the fact that they had not made observations of interest and value during the year, for there is no physician in active practice who cannot make a year's study of his cutaneous experience valuable and interesting, but because there was lacking either the patience or the opportunity requisite for the preparation of a formal paper. The portfolio I have suggested would preserve these less formal contributions and prove, eventually, important as a compendium of facts for reference.

The third suggestion was originally made in writing, and addressed to the Association by one of its members. It contemplates the appointment of a committee charged with collecting information on certain definite subjects. By the measure proposed, the effort of the Association would be systematically directed in certain channels of observation. However freely we may admit the futility of attempting to solve any scientific problem by the appointment of a committee, a step in the direction desired might unquestionably be taken, and might lead to very practical results. For example, it has been a matter of discussion in this body, whether the subjects of acne were or were not habitually the victims of dyspepsia. For the past two years I have recorded opposite every note relative to cases of acne in which my advice has been sought, a memorandum containing the ascertainable facts in this connection. With the results obtained, we are not at present concerned, but they serve to illustrate the value of similar observations conducted on a much larger scale. In some such way as this an effort might be made to obtain a knowledge

of the natural history of many disorders not dangerous to life, each member engaging to observe a definite number of untreated cases of any given disease for an agreed period of time.

The last consideration respects the increase of membership in this Association. None of us are willing to see a name added to our rolls which is not worthy of such a place. Each of us surely is willing to place there every name deserving of such inscription. We are called upon, it seems to me, to act in this matter with due conservatism, on the one hand, and with a wise discretion on the other, recognizing the need of that increment which the purposes of this organization must eventually require for their fulfillment. Many of the physicians of this country are annually perfecting their education in special departments of medicine by foreign study and observation, and with the enlarging clinical advantages of the metropolitan centers of our own country, are steadily acquiring a position which must claim our attention. Of these there are probably some who would not choose to apply for admission to our ranks. It may be well for us at no distant day to authorize the council, or a committee specially selected for that purpose, to propose the names of suitable candidates, who would thus be presented for our suffrages without laboring under the disadvantages of relying for support upon a single proposer, or of being themselves applicants for the privilege of admission.

In conclusion, I may be permitted to express the hope that he who shall, in five years from this time, pass under review the achievements of this Association during the first decennial of its existence, may find it his agreeable duty to chronicle a proportionately larger measure of good results accomplished, and to point to no less brilliant prospects in the future.

Dr. C. Heitzmann, of New York, made some remarks with reference to Studies on Myxo-Angioma of the Skin, Clinical and Microscopical. (Published in *The Medical Chronicle*, Nov., 1882, p. 90.

Tumors of the skin, termed angioma, or vascular, or erectile tumors, are of frequent occurrence. They appear either as purplish spots, sharply marked from the neighborhood, or as dark-red elevations, sometimes distinctly pedunculated. These tumors are more or less compressible; they, in the majority of the cases,

are not congenital, but appear in early childhood, remaining stationary or slowly extending over the surface of the skin. Congenital angioma is known as nævus flammeus. It is sometimes pigmented, and is usually freely supplied with hairs.

We distinguish three varieties of angioma,—the simple, the lobular, and the cavernous angioma. In the first two forms, arterial, venous, or capillary blood-vessels may prevail, while in the third form, the veins are mainly involved. In simple angioma we find a more or less uniform distribution of the blood vessels, and between them, as a rule, myxomatous connective tissue, establishing the diagnosis myxo-angioma. Lobular angioma is composed of coils of blood-vessels, which are held together by a delicate fibrous connective tissue, there being between the coils coarse fibrous connective tissue. Cavernous angioma is venous in nature, and represents an imitation of the structure of the cavernous bodies of the penis. Angioma, though of a strictly benign nature, sometimes breaks open by ulceration and leads to hæmorrhage, which becomes alarming only in the cavernous variety. The latter is sometimes painful in a high degree.

As therapeutical measures, excision, cauterization, vaccination, and the artificial ulceration by irritating remedies have been resorted to. Small tumors are best destroyed with fuming nitric acid transferred on the point of a hard wooden stick, which is simply saturated with the acid. Pedunculated tumors are cut off by a pair of curved scissors, the cut surface being immediately afterwards touched with liquor ferri sesquichloridi. Larger tumors need excision with the knife. Electrolysis serves in many instances for the destruction of the blood-vessels, if the negative pole of a constant electric current is brought to bear upon the newly-formed tissue by means of numerous applications with needles. Whether the success thus obtained is permanent will be demonstrated by observation of the tumors operated upon for a number of years. The method is of too recent a date to allow any positive statements as to its value.

Myxomatous tissue, which is largely involved in the construction of myxo angioma, appears as medullary, reticular, lymph, or adenoid tissue, and also in the form of a tissue resembling that of the thyroid body. Myxomatous tissue is present in large

quantities throughout the animal body in the earliest stages of embryonic development. It also forms exclusively the tissues of transient service, such as the placenta and the umbilical cord. In the adult, myxomatous tissue is met with only in the vitreous body of the eye, in the lymph-tissue, including the layers widely spread over the so-called mucous membranes, erroneously termed adenoid tissue. It is most prevalent in the alimentary tract and in the mucosa of the uterus.

The reticular variety is the most likely to form soft, benign tumors, termed "myxoma," and this variety constitutes also the basis-substance between the blood-vessels in the myxo-angioma. Here the blood-vessels are constructed of large endothelia, and are characterized by a comparatively wide caliber. In rare cases, pigment is found in myxo-angioma, which indicates a tendency toward the formation of a malignant type, the sarcoma (myeloma), especially the melanotic myeloma. If such a change takes place, the attempts at eradication of the tumor are usually not successful.

DISCUSSION.

Dr. Piffard said that the treatment of these growths by electricity had in his experience proved unsatisfactory; he had found them very difficult to destroy, and very likely to return. Paquelin's cautery and the hot needle had been more successful in his hands, although several applications may be required. These tumors sometimes shrink and disappear of their own accord. When the growth is stationary or becoming smaller, it should not be meddled with, but where it is increasing in size some operation is required; it is in this case, also, that a re-growth often recurs.

Dr. White enquired if the lecturer could explain the tendency to ulceration which sometimes is manifested; whether inflammatory or due to stasis, and why it occurs least in advanced life?

Dr. Heitzmann believed that it was inflammatory originally, leading to engorgement, strangulation and stasis, although there are no positive observations upon this point. The only explanation of the latter fact is that late in life, the structure of the growth changes; the intervening tissue becomes more fibrous and less myxomatous.

Dr. White stated, with regard to the removal of nævus, especially the form known as spider-cancer, that the destruction of the central knob with electrolysis, is often sufficient to produce permanent relief; but in other forms it had failed. He had repeatedly tried to destroy them by this means, but had never succeeded.

Dr. Taylor spoke of ulceration and hæmorrhage, and mentioned two cases in which nothing would stop the bleeding. He inquired if Dr. White had seen such cases get well?

Dr. White said that he had.

Dr. Taylor asked if they were large?

Dr. White said, no, not very large.

Dr. Taylor stated that he had now such a case under his care in which the growth covered the entire half of a child's head; the face especially was involved.

Dr. Piffard said that in his previous remarks, he had only intended to refer to the large, deep-seated growths about the face and lips as being so hard to cure; the superficial varieties he had not found difficult to treat.

Dr. Taylor said that in one of the earlier meetings of the Association he had reported cases of angioma pigmentosum et atrophicum which were still under his care at present. The first case had progressed since that time; of the tumors over the face, the growth at the angle of the eye has gone on increasing and now had become very vascular and completely covered the eye. The growth is pediculated and looks like lobules of tissue. The general object of treatment had been to reduce the size of these masses; several surgeons had attempted to remove it but without success. Liquor potassæ ℥ij to ℥j was now being tried, and apparently with good effect: the tumor is getting decidedly smaller. In the second case, the tumor still exists upon the cheek.

He insisted upon the peculiarity in the appearance of the spots in these cases. At first there appears a little pin-point elevation which increases and becomes more or less linear, and decidedly red in color, and afterwards leaves a pigmented spot; this repeats itself, the lesions appearing in crops. He could not say positively that the pigment did not come first; in some cases the growths wither away, in others they develop into angioma.

Dr. Duhring's case should not be mentioned in this connection. It was an old case, and the pigment was distinctly a sequela and not of original formation. As Dr. Fox has had a number of cases, which will probably be reported at the next meeting of the society, the speaker would defer further remarks upon the subject until then.

Dr. Piffard observed with regard to pigmented deposits succeeding vascular congestion, that in almost all cases where maculation occurs as a pathological condition, it is the result of hæmatine deposition, and it is probably only in a few exceptional cases (as in the eye) that we have genuine ooze deposit of melanine.

Dr. Taylor suggested that possibly the lecturer could explain why we have in some cases a local increase of circulation, producing a red spot, which afterwards becomes pale and yellow,—and no epithelium near it.

Dr. Heitzmann asked if Dr. Piffard could give any method of distinguishing between hæmatine and melanine?

Dr. Piffard said, yes. Hæmatine is easily recognized by tests that are well known; it is exceedingly soluble; melanine is not soluble, etc. Robin pointed out the distinction ten years ago, in the *Journal de l' Anatomie et de la Physiologie.*

Dr. Heitzmann inquired if melanine discoloration occurs after a hæmorrhage.

Dr. Piffard said that he did not understand how melanine discoloration could occur after extravasation of blood. Even the old brown spots on the legs after prolonged ulceration, are really due to hæmatine, but the hyperpigmented discolorations of vitiligo are probably due to melanine, and not to the blood discoloration, the pigment being heaped up more in some cells and less in others.

Dr. Heitzmann merely inquired if there exists any means of distinguishing them in practice.

Dr. Piffard replied that the means of distinction are very clearly laid down in the article by Robin, to which he had referred.

Dr. Heitzmann said that it is a very important question for the dermatologist. The test is in the color of the negro, which is due to normal pigment in the cells of the skin. In explanation

of the excess of pigment in the dark races, it may be said that it is the result of heat, but it is seen that men who work in the heat constantly, as in foundries, the heat does not produce such an effect.

Dr. Atkinson believed that heat will produce pigmentation, chloasma, for instance. He had seen the statement that large patches of chloasma occurred on the buttocks in women who sit over charcoal furnaces in France, and he had seen similar cases.

Dr Hyde said that he had been struck with the remark made by Dr. White, that freckles and "tanning" occur in places not exposed to the sun, but simply from the influence of the water. In the bath houses at Chicago, the women complain of the effect upon their complexions, although the bath houses are shut in and covered.

Dr White remarked that he had already called attention to the difference between the effects of the sun on the land and water; and in different persons; some will burn without any pigmentation whatever, others will tan without burning. The difference does not depend upon the amount of burning but to personal peculiarity. In some it would seem as if the pigment cells were formed under the direct influence of the sun, without inflammation.

Dr. Piffard claimed that this confirmed what he had said a few moments ago, that the coloring matter of the skin is melanine, which may be increased or altered by the effects of the sun, by causing direct hypersecretion of these cells, without altering the circulation.

Dr. Hardaway had noticed a similar discoloration of the skin in old people who sit around the fire.

Dr Robé said that he had a few patches of leucoderma in his hands. A few years ago while at sea, he was exposed to the sun and became much tanned in consequence, but these patches upon his hands became red and painful, but did not tan. Afterwards the burning passed away, and the spots became pale again, in marked contrast to the surrounding skin.

Dr White further remarked that pigmentation may occur as the result of hyperæmia and also without preceding hyperæmia. For instance, in morphœa, pigmentation may be said to follow

congestion, but in vitiligo there is never any inflammation or increased flow of blood to the parts. He could not see how Dr. Heitzmann would be able to support his view, in this case, that pigmentation is in any way dependent upon the coloring matter of the blood.

Dr. Heitzmann said that if the particles of living matter are saturated with the coloring matter of the blood, pigmentation will be effected without local increase in circulation. It is noticeable that chronic inflammation in the two hollow organs, the stomach and the bladder, often leads to a deposit of pigment in their walls, which shows that a long continued increase of blood in the tissues will produce pigmentation. The remarks of Dr. White show that there are two kinds of pigmentation.

Dr. Taylor referred to the case of exposure of the face to the rays of the sun when the skin becomes brown, but all above the line where the forehead is protected by the hat it remains pale. He did not believe that there can be such a line of demarcation of hyperæmia.

Dr. Heitzmann.—This carries out the observation of Dr. White; the sun must have something to do with it.

Dr. Piffard said there must certainly be two kinds of pigmentation, that due to hæmatine and that due to melanine.

Dr. Hardaway observed, in conclusion, with regard to the electrical treatment of angioma, that, in "spider cancer" his experience agreed with that of Dr. White. He had treated it successfully by electrolysis. In one case, a tumor on the lip, the size of a half-dime, disappeared and did not return. On the other hand, some of these cases must tend to spontaneous cure, for the most simple remedies have been used, and were followed by a recovery; for instance, the oil of ergot has been used, and a cure followed, though probably not as an effect.

The absence of scar after electrolysis, and the perfect control which is had over its action, renders it much more useful than acid in the treatment of angioma. With regard to acne rosacea, however, there is a tendency to return if the cause of the disease be kept up; in a number of cases in which he had also been able to treat the cause, he had succeeded in curing the disease, and it

had not returned; nevertheless, the use of electrolysis will diminish the tendency to the formation of blood-vessels. He prefers to use a large number of needles, as by this means he was able to obtain better results; he also observed that the electrolysis lessens the rosacea better when combined with other treatment, at least this had been his own experience.

Dr. James Nevins Hyde read a paper entitled *

A CLINICAL STUDY OF DERMATITIS PAPILLARIS CAPITIS,

the first vice president, Dr. William A. Hardaway, of St. Louis, having been called to the chair.

DISCUSSION.

Dr. Taylor said that he had a case of this kind under treatment at present. The disease first came under his observation eight years ago, in a case at the Presbyterian Hospital in New York. It was then pronounced keloid, no history having been obtained. It was operated upon by Dr. Brinton, who removed the entire mass. Upon examining it microscopically it was found not to be keloid, but an inflammatory mass. Photographs of the sections were made, and are still in his possession.

Dr. White inquired what was the maximum time required for the development of the disease.

Dr. Hyde replied that it took a year and a half in one case; from his own observations, he would consider the briefest period to be at least six months.

Dr. Taylor said that he had a case now under observation, in which six months had passed, and it had apparently not reached its maximum yet.

Dr. Hyde, in reply to a question, remarked that no lesions appeared on the face or on any part of the scalp except the portion referred to; elsewhere there was complete immunity.

Dr. Piffard said that one of the most interesting cases he had seen was one presented by Dr. George Fox at the Pathological Society, it presented the character described by the lecturer, and the question with regard to the diagnosis had been, was it syphilis? was it keloid? or was it kerion?

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Dr. Duhring recalled a case that he had seen a few months ago; he had only seen it twice; it corresponded with the description given by Dr. Hyde. The patient was a mechanic, thirty years of age; the disease had existed in the position indicated for a year and a half. It gave him very little inconvenience; it was unaccompanied by itching or pain; the only reason for seeking advice was the slight trouble in combing his hair. When he came under observation the patch was the size of the palm, say 4x 4½ inches. It was composed of pin-head sized to pea-sized papulo-pustular lesions, disseminated and confluent. The disease was recognized as a rare form, and although it gave the impression of some induration like keloid, the diagnosis of keloid was not made. He at once recognized it as a case of this disease, which was the first he had seen. The clinical features were so marked that the case made quite an impression upon him; he concluded that it was an inflammatory affection, of an extremely slow course. The hairs upon the affected part were in some instances wanting, in others they were still in the follicles, but they were atrophied and easily plucked out; they were not twisted nor broken; here and there were a few divided, but there were not many so. Alopecia existed to a certain extent, but it looked as if complete alopecia would follow if the disease were to continue. Keloid was excluded from the diagnosis by the clinical features; kerion by the microscopic examination, by which no parasite could be detected.

Dr. Atkinson said, it seems that notwithstanding how obscure this disease may be, there is one point in the pathology that we can be very certain about; it is a folliculitis. This is shown by the appearance of the inflammation; it is shown by the peculiar discharge. If we have an inflammation of the skin, a catarrhal inflammation, we have the gummy, sticky, transparent discharge; and if the catarrhal affection involves the hair follicles very superficially, we also have this peculiar discharge in kerion, when we have this form of folliculitis. Liquor potassæ will also excite the same form of inflammation. A German authority describes this form of folliculitis and papillary outgrowth, as the result of administration of iodide of potassium. (*Vierteljahreschrift.*) He is sure that it is an inflammatory trouble, but whatever there is of it, is due to inflammation of the

follicles, unless we may imagine it to be due to long-continued hyperæmia, and to result from hypernutrition; the coloration of these spots is of the same character. There is slight exudation, such as is found in old chronic eczema.

Dr. Heitzmann inquired the nature of the fluid which could be squeezed out.

Dr. Hyde said that at first it is clear lymph, and afterwards bloody.

Dr. Heitzmann corroborated what Dr. Atkinson had said. He referred to a case which had been under his care, a negro, who had the disease in the back of his neck. Upon examining it, his first impression was that it consisted in inflammation around the sebaceous glands and hair follicles. It occurred to him to ask the man if he had been in the habit of rubbing his scalp at night, and on his next visit the patient said that it was so, that he had been rubbing his head at night against a rough neck-band of his shirt. The second case, a Jewish merchant, exhibited the same lesions as those referred to in Dr. Atkinson's remarks. Here it was also found to have been caused by rubbing the back of the neck against a rough collar. This case he did not see again.

Dr. Taylor said that in his cases, at first, he used a slightly stimulating treatment; later, he applied liquor potassæ. He hoped that his cases would escape without a scarred appearance; he did not care if this treatment does destroy the hair follicles, as they will be destroyed anyway.

Dr. Hardaway said that in a case he had examined, he had discovered the primary lesion to be tuberculo-pustular, and had observed this peculiar secretion. He had had two cases besides, where the peculiar appearances so well described, were all present, except that it had not reached the keloid stage. The disease was in the region rubbed by the shirt collar. As this disorder is not found elsewhere, and as it would not occur here except for good cause, he was inclined to regard, as the efficient cause, the rubbing and irritation of the collar.

Dr. Hyde replied that this explanation seems like a very simple and easy way out of the difficulty, but it did not quite satisfy him. He had never seen a simple case of eczema which

might be mistaken by experienced observers for epithelioma, kerion, or keloid, nor had he seen such keloid growths from chronic eczema. Moreover, the disease also occurs further up on the scalp, where the collar cannot reach. He thought while Dr. Heitzmann was speaking that he was about to say that it was due to scratching at night, with the fingers, while partly asleep. This might be the cause of the irritation, but the pathology of the disease is not well understood.

Dr. Hardaway said that in the negro the disease was lobulated.

Dr. Duhring said that in his cases there had been no such irritation from the collar to cause the disease.

Dr. Hyde, in reply to a question, said that he thought the disorder was sufficiently well characterized, to warrant calling it a distinct disease.

Dr. Hardaway inquired whether the lobules corresponded with the location of the hair follicles. His own opinion was that they do.

Dr. Hyde said that it was probable.

Dr. Taylor said that in the case he had referred to, the folliculitis was marked, and a large amount of fibrinal tissue had been developed.

Dr. Hyde regretted that he had not made a microscopic examination of the secretion.

Dr. Heitzmann said that there had been no secretion in his cases.

EVENING SESSION—AUGUST 31ST.

Dr. Robert W. Taylor of New York, read a paper entitled Notes on Psoriasis.*

DISCUSSION.

Dr. W. A. Hardaway said that he thought that all were aware of the theory of Wilson, but, as Dr. Taylor had said, it is a theory which had not been accepted; and, moreover, it seemed to him, a theory totally untenable. He inquired if he correctly

* Published in *Journ. of Cut and Ven. Dis.*, Vol. I, No. 1, p. 3.

...lecturer to state that syphilis is the only cause of ...

...that he did not acknowledge any cause; he ... certain facts, and would let the members draw ...

... remarked that it was hard to discuss the subject ... He recalled a case of psoriasis in which ... appeared at the age of 65 years: but we know ... syphilis does not appear so late in life. The ... developed is against the hereditary character of ... had seen it stated that psoriasis rarely appears ..., he had seen it himself at all ages, and often in ..., in whom he had satisfied himself that it is ... He recalled an interesting series of cases. In two ... and a sister with psoriasis, each with child- ... the exact number of persons, but nearly ... had this disease. This gentleman said that ... from what is considered psoriasis. ... treatment he would simply say that he ... and arsenic in several cases. ...

... state that from ... is ever the ... a corrobora- ... know that the papu- ... so much like ... finds himself hesita- ... be distinguished. ... history so well known. ... From ... know whether Dr. ... these diseases or not. ... in what we ... manifestations as psori- ... thought this view ... disease. It ... train of thought

and a more exhaustive paper in its support than that theory just presented, before it can be adopted.

Dr. White thought that it would have been better if Dr. Taylor had simply stated that syphilis is one of the antecedents of psoriasis. It seemed to him that there could not be two diseases more dissimilar. The course of the disease, the fact that primary syphilis may occur in a person suffering with psoriasis, and the general results of treatment are all against this view, but if he means simply a coincidence, he merely asks whether psoriasis after syphilis may occur any more often than eczema, for instance.

Dr. Taylor said that he had not submitted any theories but simply facts; he would like others, if interested, to pursue them further. He thinks eczema an entirely different question from psoriasis. Eczema may be due to traumatism, but he had never seen psoriasis so caused. He merely observed that we are all at sea with regard to the etiology, and he had simply suggested a possible explanation.

Dr. White asked the character of the patients investigated, with regard to social position.

Dr. Taylor said that they were of all classes from the highest to the lowest. He would simply state that these cases had occurred in his experience; he merely wished to lay this fact before this body in order that further light may be thrown upon it; authorities state only negations. Dr. Duhring simply says that syphilis has nothing to do with it.

Dr. White said this is simply the point that he wanted to bring out; he thought that in twenty-five cases of psoriasis, taking them as they come, he would find a larger number of cases of syphilis than in eczema, on account of the social condition in life among which such cases usually occur; in other words, in another disease, like eczema, we would not find such a large proportion of cases of syphilis.

Dr. Taylor said that he simply gave the facts, that in a certain proportion of cases he had found this history, and he would like others to inquire into the cause.

Dr. White inquired if he could always satisfy himself with regard to the history of syphilis. If a man 65 years of age has

psoriasis, what does he know about his grandfather? Did the lecturer take his cases in sequence or select those that gave a clear history?

Dr. Taylor said that he did not pick his cases. He had no desire to pick his cases to present any theory. He did not read the whole series of his cases as he did not wish to weary the society with a long report, and therefore merely gave the concrete facts.

Dr. C. Gilman Smith said that there seems to be a greater tendency from year to year to give syphilis a larger share in the causation of chronic skin diseases. He did not understand Dr. Taylor to bring this before us as a matter of conclusion but as suggestive. He would himself think that the fact that arsenic had such an effect, would lead to the view that psoriasis was not syphilis.

Dr. Taylor said that some syphilitic lesions are best treated by arsenic, as we know. He would state just here that in the young cases Donovan's solution will have more effect than in the older ones.

Dr. Robinson believed that he had asked all his cases of psoriasis this question about syphilis; and there were a considerable number of them. He was satisfied that there is not a greater proportion of cases with syphilis than he would expect to find, so that he would not conclude that syphilis is the cause. Psoriasis occurs at all ages; there are many points of difference between it and a papulo-squamous syphiloderm; there is not the proliferation of cells; and then again, if it is syphilis, it is strange that it does not appear on the palms of the hands more frequently than it does. It is common in syphilis, but he had never had a case of psoriasis which showed it. He had found cases to get well more quickly on arsenic and iodide of potassium, than on arsenic alone. He had given arsenic to a child for a month with little effect, but on adding five grains of iodide to each dose, it got well inside of another month. With reference to traumatic causes, he certainly had seen cases in which psoriasis had been excited by external irritation of the skin; in some cases it has followed vaccination, and on the spot where the child was vaccinated; it was therefore not due to some change in the whole

system, but to a local change in the skin. Upon a careful consideration of the subject, he could not find any connection, or even anything upon which to base a view of there being any connection, between psoriasis and syphilis.

Dr. Rohé said that as the causation of psoriasis had come up for discussion, he would shortly report a few cases in which it followed vaccination. He had never seen any report of such a connection, and he had therefore prepared the notes for reading before this society. With regard to syphilis, he had never been able to get any evidence that any individual who had syphilis had anything to do with the generation of psoriatic children.

Dr. Heitzmann said that he thought it hardly necessary to repeat the fact that syphilis and psoriasis are entirely distinct. So long as it is merely stated as a coincidence, there is nothing to argue about. Why should not a syphilitic father have a psoriatic child?

Dr. Piffard said that there are only three distinct causes assigned for psoriasis; these are known as the suboxidation theory, the one which he favored; the parasitic view advanced by Lange, and the syphilitic theory referred to by Dr. Taylor. Now, if we compare the course of psoriasis with the ordinary course of syphilis, there is no similarity; they differ in almost every point. There is, in fact, no point in which they come in contact. Psoriasis, moreover, is a disease which was known and accurately described in very ancient times; syphilis was not, it certainly was not accurately described. If we turn to the sacred writings, Christ is stated to have healed ten cases of psoriasis (the English translation says leprosy, which is a mistranslation. Lepra is a Greek term, simply meaning scaly). Now, if syphilis did not have an ancient origin, then certainly psoriasis could not have proceeded from it. The coincidence of psoriasis and syphilis has been studied by Dr. Hyde in a paper which, it is hoped, will soon be read. The speaker had seen several cases in which primary syphilis occurred in persons with psoriasis. If psoriasis is syphilis, we would hardly expect the two lesions progressing together, the papular, and, later, the tubercular syphilide, occurring with the psoriatic lesions, which recur from day to day without change.

Dr. Taylor brings forward the statement that arsenic and mercury are useful in the treatment of psoriasis, and Dr. Robinson has found iodide of potassium useful. Of this there is no doubt, whatever. He had himself seen a number of distinct cases of psoriasis disappear under these remedies; not cases of squamous syphilide, by no means. He had also seen, in the practice of another gentleman, the lesions of psoriasis made to disappear very promptly by the use of large doses of iodide of potassium internally, and mercury by inunction, as the sulpho-cyanide.

He thought that the whole matter might be summed up by saying that mercury and iodide of potassium are useful in psoriasis; and, secondly, that in a certain number of cases of psoriasis there is an antecedent history of syphilis, but not more so than other skin diseases, like acne, for instance.

From Dr. White's remarks, he inferred that he thought that syphilis is very common in the lower classes; the speaker's opinion was that the contrary is the case; syphilis is more likely to occur among capitalists than among laborers.

Dr. Hyde said that he greatly regretted that he had not been able to find an opportunity to complete the notes which he had taken, upon which he proposed to base a paper announced in the programme in connection with this discussion, because it was based upon facts he had observed, and which were of special interest to him. He was unable to present the paper, but he could state this much: He had had under observation two cases of inveterate psoriasis, both of which were typical cases, and both of which were unmistakably infected with syphilis. One of these he saw only a few times; the other, quite the reverse; for six years he had this patient under observation with every recurrence, and there were many of them. He was a very obedient patient, and was willing to carry out all the instructions and experiments made upon the disease. He (Dr. Hyde) was not only familiar with the disease, but the peculiar characters and appearances of it in this patient, who subsequently contracted syphilis. Not only did he contract syphilis, but at the proper time a peculiar efflorescence appeared upon the skin, the course of which was watched with much interest, in the expectation of finding a mixed form of eruption. When it

appeared it was abundant, covering him all over, but it was an unmistakably psoriatic eruption. The "trick" of the skin for six years had controlled the eruption. No difference could be distinguished between it and former eruptions; the palms of the hands and soles of the feet were spared. At the same time he was affected with adenopathy, mucous patches, and other signs of syphilis, with which we are familiar, and when the psoriasis declined an unmistakable syphilitic eruption appeared.

Dr. Taylor inquired of Dr. Robinson whether he had gone into the history of his cases with the view of ascertaining a syphilitic etiology.

Dr. Robinson said that he did find the coincidence occasionally, but not any oftener than in other diseases, and not any more often than he would have expected in a similar series of cases, say of acne.

Dr. Taylor asked particularly if he looked for it, and what was the number or percentage.

Dr. Robinson thought that Dr. White had answered this fully. Unless we get a larger number of such cases of antecedent syphilis than we have in any other skin disease, all the argument is of no avail.

Dr. Taylor said he wished to state that he utterly repudiates the suboxidation theory.

Dr. Hardaway, referring to the exceedingly interesting cases of Dr. Hyde, inquired what was the period between the initial lesion of syphilis and the appearance of the psoriasis.

Dr. Hyde said that sixty-five days, he believed it was, from the first appearance of the sore, and his recollection was that it was fully four weeks from the time when the other eruption came out to the time when the papulo-squamus syphilitic eruption was noticed.

Dr. Taylor had noticed one fact in the treatment of psoriasis: If children are treated early and systematically, it will keep off relapses, and at least twenty-five per cent. will be cured. He thought that those inveterate cases occur because they had not been properly treated; they are difficult to cure because the skin has taken on bad habits.

Dr. Piffard inquired how many cases of children he had treated in this way, and what was the percentage of cures.

Dr. Taylor said that he did not know at the moment, but four cases he could recall which were cured by this method, and which had been kept under observation; these have not had any psoriasis for five or six years.

Dr. Piffard.—Then you have treated twenty cases, and sixteen failed?

Dr. Taylor said that he could not tell how the cases turned out, as many of them are lost sight of, but the prognosis is usually bad, as pointed out in the books. He thinks, however, that if mothers are told there is a chance, by following out the treatment, that their child may escape further manifestations of the disease, it would be better.

Dr. Hardaway recalled a case, sixteen years of age, treated by chrysophanic acid, but without any arsenic or mercury whatever. Therefore, if the case will recover from local treatment exclusively by chrysophanic acid and green soap, no conclusions can be drawn with regard to the constitutional character of the disease, and by giving internal remedies we merely take a circuitous method of accomplishing what we can do directly by local treatment.

Dr. George H. Rohé of Baltimore, read a paper on Two Cases of Acute General Psoriasis Following Vaccination.*

DISCUSSION.

Dr. Heitzmann regarded the paper as very conclusive and logical, especially the last statement, that in the psoriatic subject any irritation may produce psoriasis. He does not claim any special connection between vaccination and psoriasis. It does not need any discussion.

Dr. Hardaway had not seen any such instances of psoriasis following vaccination although he had considerable opportunity for observation. There are a number of eruptions that are apt to occur after vaccination, herpes, multiform erythema and eczema especially; the latter may be a late lesion. Vaccinal eruptions may appear at three stages: the first is during the irritation of the

* Published in *Jour. of Cut. and Ven. Dis*, Vol. I, No. 1, p. 11.

lancet, which may give rise to acute inflammatory trouble; the second stage is during the time when the vaccination poison is acting in the blood, and there may be eruptions just as from medicinal substances; then, in the third stage, during the pus formation, there may be eruptions due to something like septic poisoning. He had treated in St. Louis similar cases of eruption due to purulent otitis media; they are produced by some septic influence at work in the case.

Dr. White asked if the first case had been followed by prolonged pigmentation of the skin, also as to the size of the lesions?

Dr. Rohé replied that it probably lasted three months before it entirely faded; the primary eruption did not last more than six weeks. The lesions on the chest were not over the size of a silver dollar; there were larger aggregations of the primary eruption, but these are just the single ones.

Dr. White asked if this kind of pigmentation is common in psoriasis?

Dr. Rohé said that this dark slaty pigmentation always remained in the cases he had treated, and it remained in this case for two or three months, before the skin entirely resumed its normal appearance.

Dr. White said that this amount of discoloration seemed more suggestive of lichen ruber than psoriasis; it is a rare condition of the skin. With regard to the action of arsenic he inquired how long it had been given?

Dr. Rohé said that it was given only for a week. The reason it was stopped was because it made the patient worse. He was an intelligent person, himself a physician, and he said that he must have something else, as it disagreed with him; he could not sleep at night; he then suggested other treatment.

Dr. Taylor thought that Dr. Hardaway was correct, in a measure, with regard to the lighting up of psoriasis; he had a case occurring after an attack of scarlet fever, and in another instance after measles. He had seen a child that had fallen out of a canal boat have a slight fever, with an eruption of psoriasis following. He thought that the mere congestion of the skin might be sufficient to start the disease, or any ephemeral disturbance of of the circulation.

Dr. Piffard remarked with regard to arsenic, he had seen psoriasis almost entirely cleaned up, the redness disappearing, and cessation of scaling, before the patient had taken two doses. She took a teaspoonful of Fowler's solution by mistake. She was much bloated and it nearly caused her death, but it cured the psoriasis. He believed that we could get much better effects in some cases if the patient could stand large doses of arsenic.

Dr. White said that he had repeatedly seen cases of psoriasis show great change in a week from the effects of arsenic.

Dr. Piffard recalled some of the experiments made by Ringer and Munell upon frogs, in which large doses of arsenic were followed by shedding of the entire epithelium from the body. They are reported in the *Journal of Physiology*.

Dr. Hyde said at the conclusion of the small pox epidemic in Chicago, during last season, he had been visited in his office by the health officer of the city of Chicago, with a young lady who had what appeared to him to be a typical psoriatic eruption covering the arms to the elbows and the upper portion of her body. She gave the history of having had no disease prior to vaccination, and the appearance of this disease since then. The health officer said that out of fifty to sixty thousand cases of vacination he had only seen this one case. The speaker was surprised that there had not been more. If we take the statistics of psoriasis and compare them with the enormous number of people who were vaccinated, it is remarkable that we have not had more cases falling under our notice than there have been. He recalled a case that did not die from the effect of chloroform. A patient was to have some teeth extracted by a dentist, under chloroform. She did not feel well and came to tell the dentist that she could not keep the appointment. Upon going out of the door, she fell dead upon the steps. Had she taken the chloroform she would have died in the chair and it would have been set down as a death from chloroform.

Dr. Rohe thought that there must be more cases of psoriasis occurring after vaccination but they have never been reported. With regard to Dr. Taylor's remark about the occurrence of psoriasis after vaccination resembling that after scarlet fever or measles, and due to general hyperæmia of the skin, he would say

that in his first case there had not been any such general hyperæmia because the vaccination had not been successful.

Dr. H. G. Piffard read a communcication entitled

CALX SULPHENATA.

Dr. William A. Hardaway said that when Ringer first published the observations referred to, he had sent to London for some of the sulphide of calcium, and had been using it ever since in fair doses. While inclined to believe that it possesses this anaplastic character, there is no drug about which his opinion had vibrated so much as this. It had seemed in some cases of pustular eczema to have done good, but he had never seen any marked effect from it in recurrent furumculosis; then, again, there were cases of acne, in which his results were *nil.* This may be due to the fact that the preparations have varied in quality, but it was a fact that he had been unable to come to any conclusion with regard to its therapeutic properties.

With reference to diabetes, he recalled the fact that a paper on this subject had appeared some five or six years ago in the Detroit *Clinic.* Regarding transient swelling of the lips, he also recalled a paper published recently by Dr. Curtis, in the *Boston Medical and Surgical Journal;* he did not think that the case reported would permit the drawing of any conclusion with regard to this condition.

The hypo-sulphite of sodium had been used by the speaker very largely in small-pox; his observations had extended over several hundred cases. It had occurred to him that under the use of large doses, he had succeeded in lessening the amount of the secondary fever and suppuration, and therefore lessened materially the amount of pitting. At one period he had made this a routine treatment; it always seemed to do good; there was less fever, less suppuration, and less pitting in small-pox with the hypo-sulphite of sodium, than by the ordinary treatment.

Dr. White was just about calling Dr. Piffard's attention to the cases of peculiar swelling of the lip described by Dr. Curtis; he agreed with the last speaker that no conclusions could be drawn with regard to the use of calcium sulphide in this disease from

the case reported. With regard to its effects upon glycosuria, he inquired if there had been any change in the diet.

Dr. Piffard said that he presumed that there had been no particular change in the diet, as the patient was taking the agent merely for the skin eruption.

Dr. White inquired the poisonous dose, and how does it act?

Dr. Piffard said that large doses would be thrown off, but smaller doses would be retained, and produce their anaplastic effect just like mercury. He had seen half a grain cause vomiting, and had known five grains to be given without vomiting.

Dr. White said that he had never used large doses except in furunculosis and some forms of acne. He had been almost uniformly disappointed with its effects in doses of one-eighth to one-quarter grain. He had never seen it do any good whatever in continuous furuncular disease; in acne he had also used it in all grades, but had rarely seen it produce any good effect.

Dr. Taylor asked how many cases of non-parasitic sycosis the lecturer had treated with calcium sulphide.

Dr. Piffard had not the notes with him, but believed there were from twelve to fifteen in all.

Dr. Taylor.—How long did it take to cure them?

Dr. Piffard.—About a week or two weeks.

Dr. Taylor.—Were there any bad cases, and how much time did they require?

Dr. Piffard.—Yes; they took a little longer, from two to four weeks.

Dr. Taylor.—Were any external remedies used?

Dr. Piffard.—No; he took out the hair from the follicles that were diseased, but not necessarily nor repeatedly.

Dr. Taylor.—Was there no hot water used?

Dr. Piffard.—Not anything, locally.

Dr. Taylor.—With regard to the trouble of the lip, was there any disease of the teeth?

Dr. Piffard had not asked.

Dr. Taylor said that where there are bad teeth these swellings of the lips are not very rare. He further inquired what doses were required to cure these cases.

Dr. Piffard.—One-eighth of a grain.

Dr. Taylor said that it was a remarkable result from such a cause. He agreed with Dr. White in his statements; his experience with this drug had been about the same; but he still had hopes.

Dr. Duhring said that his only experience had been with furunculosis, and he had found that the calcium sulphide acts very variably in this disease. He has had both good results and poor ones; sometimes he has been much disappointed with it. He had himself suffered from furunculosis, which refused to yield to ordinary remedies, such as arsenic, malt liquors, etc.; finally it was relieved by hypo-sulphite of sodium. This was some years ago. Now, within the last six months, he had a return of the disease, and had taken sulphide of calcium perseveringly, but had obtained no beneficial result; and it was not until he went away from home, and left his duties, that he began to improve. At the same time, he had had very gratifying results, and although he had also had disappointments, the good results were much more numerous than the failures. In acne, particularly, he had been disappointed, and had failed to get the good results which have been handed down to us during the last ten years by Ringer and others.

Dr. Smith, of Chicago, inquired as to the theory of the use of the drug in diabetes. If it has a decided anti-inflammatory power, it might be serviceable in some cases of nephritis.

Dr. Piffard said that this remains to be shown.

Dr. Robinson said that he has had great experience in the use of sulphide of calcium in furunculosis in children, and he generally had good results; where they did not recover they were generally found to be the subjects of acid dyspepsia, but certainly three-fourths of the cases did well. In acne he had also used it, but failed to recall a single case benefited by it.

Dr. Atkinson had had a large experience in suppurative disorders with sulphid of calcium; he had used it in furuncles, acne, carbuncle, and buboes, but had never been able to persuade himself that there was any good effect. In a man with general pustular eczema, the case got entirely well under the use of sulphide of calcium, but this is the only case where the results were at all good; in all the others the results were absolutely nothing.

With reference to acne, he had been much surprised by the very favorable results reported by others. He mentioned the experience of a friend of his, who was perfectly worthy of credence, who uses pyrophosphate of sodium for the same troubles that the sulphide of calcium had been recommended for, and with excellent results.

Dr. Heitzmann said that he simply agreed with the general opinion expressed by the gentlemen present that it is of no value whatever; not only had the remedy been used by him, but also by friends of his, without any result. Of course, if we pull out the hairs in cases of sycosis, we know that they may rapidly get well; he failed to see what the calcium sulphide had to do with it. If we look for the cure of furunculosis, *Fœces Canina* is an invaluable remedy, according to the experience of the older writers; or if inflammatory, it may be cured by stibium sulphuratum. Rademacher said we must have sulphur and mercury for furunculosis! We should be careful about drawing conclusions with regard to the effects of remedies. In a case of bubo that was going on to suppuration, he had put on a blister, and the inflammation disappeared, but not from the sulphide of calcium. In conclusion, he said that he did not understand that inflammation is lowered vitality; he was of the opinion that the vital changes are increased in activity.

Dr. Hyde said that he had used the preparation with the most variable results; but, he must say, with Dr. Hardaway, that he considered the hypo-sulphite of sodium solution to have a very high degree of value. He had seen the results of which Dr. Hardaway spoke, in small-pox; when given night and day, he had seen effects that were remarkable; he had observed a more rapid subsidence of the disease after its use. He must state that the sulphide of calcium as found in the drug shops is very variable in its effects.

Dr, White objected to confounding the effects of sulphide of calcium and hypo-sulphite of sodium together, as they are entirely unlike. It is probable that the better results obtained by Dr. Piffard, were due to using a better quality of the sulphide of calcium than others had employed.

Dr. Hyde, in reply to Dr. Hardaway, stated that he had used

in his small-pox cases from fifteen to twenty grain doses of the hypo-sulphite of sodium.

Dr. Piffard said that there were one or two original points in the paper to which he wished to direct attention. It had been observed by others that acne and furunculosis were benefited by sulphide of calcium; and he had shown that the varying effects were to be explained by the different qualities of the drug in the market. The second point was, that the dose should be regulated as carefully as that of any other remedy in disease; and his experience had shown that the acute cases require different doses from the chronic disorders. The swellings of the lip he had merely mentioned incidentally as interesting cases, and ad not based any conclusions upon them. The only original conclusion was that based upon non-parasitic sycosis. The activity of the drug doubtless depends, in a great measure, upon freeing sulphuric acid in the system. He had also used the sulphide of ammonium, but it is more variable and not permanent, although in some cases decidedly more effective.

Adjourned.

[TO BE CONCLUDED IN DECEMBER NUMBER]

ARTICLE VIII.

LOCAL SOCIETIES.

After a rather long vacation, the Biological Society resumed its monthly meetings, October 4, in Doctor P. S. Hayes' office, 167 Wabash avenue. It is to be deplored that the Tremont could no longer shelter this scientific body. The new location cannot be more than a temporary one as the want of sufficient room may be felt any time when the Society turns out in full.

This want of the proper locations and accommodation for our various medical societies has long been felt and never but partially remedied. It is nearly two years since the Pathological Society moved its quarters from the Washingtonian Home to 533 W. Adams street, the residence of their founder and actual

people who had used it, that his medicine was all that it was advertised to be. But the testimony was not accepted in court, and we felicitate the Eclectics on their narrow escape.

Perhaps the best attended society in Chicago, is the Philosophical Society, which meets Saturday evenings at Apollo Hall, (Central Music Hall). Some very valuable essays are read at these meetings, a few of them by medical men, as that by Prof. Jewell, which is on the programme for the 20th of January next. The only reproach to which this society is liable, perhaps, is a sort of offensive anti-religious tendency manifested by some members. It seems to count the élite of Chicago in its ranks.

The Chicago Medical Society met October 23, at the Grand Pacific hotel, and Dr. Roswell Park read his valuable paper on "The Present Status of Antiseptic Surgery," published in the last number of the JOURNAL, a paper too complete and masterly to need any comment; and the discussion which followed was of little import.

Dr. C. T. Parkes approved of the paper in all its details and said that owing to the amount of trouble necessary for applying Listerism or the aseptic method, he considered it preferable to resort to the common antiseptic dressings. Notwithstanding the ...ses of either method, he considered that they were indispen... all important operations. Some antiseptics were not ...d should often be preferred on that account to ...racic acid was valuable in that respect, and it ... followed by erysipelas. In dissection wounds, ...luid to saturate lint with, in dressing the parts. ... sustained this last recommendation, and insisted ...bolic acid in operations in which the abdomen or ...ened.

...legates were chosen to attend the meeting of ...ealth Association: Drs. H. A. Johnson, ... H. Montgomery.

president, Dr. H. M. Lyman. This new departure proves very successful, mostly on account of the amenity of Dr. Lyman and the amplitude of his rooms. His suggestion that the Cook County Hospital might at a future date offer a good place wherein the various societies could meet, is especially worthy of consideration now that the Hospital is being enlarged and new county commissioners elected. But why do not the various medical colleges offer meeting rooms for our various medical societies?

Strange, but a glance will show that the city of Chicago is wonderfully deficient in scientific societies. The Academy of Sciences after a manly struggle with adverse circumstances, has finally been forced to sell its building to liquidate a large a indebtedness, and the *only museum in Chicago* is in as disordered a condition almost as the breccia of the cave of Engis when excavated by Schmerling; all for want of room. It seems that before selling their property an attempt had been made at selling titles, for we read in their by-laws, article xi., "Any person paying twenty-five hundred dollars into the hands of the treasurer, shall be a 'Patron of the Academy,' a life member thereof, etc." The annual fee of five dollars, and initiation fee of ten, was considered too high by many professional men. Still, the curator of the Museum lately expressed his belief that the Academy of Sciences never stood on a firmer basis.

A new society which seems especially prosperous just now is the Electrical Society. They meet the last Monday of each month at the Grand Pacific hotel. Several doctors belong to it.

The Gynæcological Society has the special merit of ending its meetings with a banquet and thus combine *l'utile et l'agréeable.* As might be expected this society is not large, and seems the infancy of what may prove a worthy adult.

The latest sensation is the formation of a society of German physicians, whose place of meeting is over a saloon on the North Side, all for the want of proper accommodations.

Not to leave anything overlooked and incur the reproach of sectarianism, we must say that our Eclectic brethren have lately been heard from. A member of their society has been rejected for compounding a patent medicine, the excluded member sued the society for libel and tried to prove, by the testimony of

people who had used it, that his medicine was all that it was advertised to be. But the testimony was not accepted in court, and we felicitate the Eclectics on their narrow escape.

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Dr. E. Powell sustained this last recommendation, and insisted on the use of carbolic acid in operations in which the abdomen or the joints were opened.

The following delegates were chosen to attend the meeting of the American Public Health Association: Drs. H. A. Johnson, R. E. Starkweather, L. H. Montgomery.

ARTICLE IX.

THE CHICAGO PATHOLOGICAL SOCIETY. Stated Meeting, October 9, 1882. Dr. H. M. Lyman, President in the chair.

THE TUBERCLE BACILLUS.

Dr. W. T. Belfield extemporized a lecture on the above subject, and said that the whole matter of bacteria had of late fallen in disrepute and ridicule in the opinion of the profession. There had been so many hasty conclusions reached that the profession might indeed be sceptical. A little original work would convince one, however, that there was a great deal of fire underneath the smoke. There were as yet two well known diseases whose immediate cause had been proved to be a parasitic micro-organism. The first was anthrax, also called charbon, and splenic fever. It had been clearly proved that the disease was immediately dependent on a bacillus. The second disease was not known in this country. It was first discovered in 1877, and is a primary disease of cattle *actino-mycosis bovis*, though we are just as liable to catch it when exposed. Although recognized only five years ago, the parasites are so large as to be easily investigated. The disease consists in a series of tumors about the jaws which give rise to subacute abscesses; it is self limited in duration and results in recovery, in cattle, but in man it is by no means amenable to treatment. This is perhaps on account of the erect posture of man, for the abscesses give rise in him to pleuritis and peritonitis, reaching to the peritoneum from the mediastinum. Of eighteen cases now on record, only a few recovered. It is by no means determined just in what manner the bacillus causes the disease. But when the parasites are cultivated in gelatine with sufficient care, and then inoculated through an abrasion of the skin or mucous membrane into an animal, other viruses being excluded, the parasites appear in the blood within thirty hours. They are seen first in the blood vessels leading from the seat of inoculation, but in forty-eight hours the blood is full of bacilli through the body. Death

generally takes place in three days and, at the autopsy, the capillaries of the various organs are found clogged with parasites. It seems that the circulation of the blood would be rendered impossible under such circumstances. Yet, whether a mechanical obstruction of the blood, or a noxious change in this fluid causes death is not certain, but what is well known is that the bacilli *are* the cause of death. (Here the bacillus anthracis was exhibited to all the members present, and these organisms were very distinct under even a low magnifying power).

As to the *tubercular bacillus*, said Dr. Belfield, there seems to be widely different opinions entertained as to the value of its presence in the tubercles. Their causative relations rested on the experiments of Koch, who had given the subject much attention for the last two years, and he was certainly the most experienced, accurate and trustworthy investigator of micro-organisms in our day. Medical men as yet had exhibited much reserve in receiving his statements regarding these bacilli. The connection of Koch with the Board of Health of Berlin, had given him all the advantages required for his researches.

Reports of many clinical observations of the bacilli have been made. Professional pathologists have been devoting time to the study of the presence of the bacilli in the expectorations of phthisical patients; and the reports are unanimous in representing the bacilli in the sputa examined. So that there is at least good presumptive evidence that Koch's views are correct. Such was the stand of the subject in Europe to-day.

In a long category of diseases, all septic diseases, bacteria have been repeatedly found, but no experimental proofs of causal relations have been furnished, except in the three diseases just spoken of. Dr. Belfield had no doubt but that the same convincing proofs would in time be furnished for every one of them. While the term, bacteria, was applied to all micro-organisms, a bacillus was a rod-shaped bacterium, while a micrococcus was a spherical one. Only bacilli, so far, were known to cause diseases, while micrococci were found in all decomposing organic matter, and were always found in the infectious diseases, as diphtheria. The organism of actino-mycosis is not a bacterium, but resembles an alga. It was a question whether the examination

of sputa in phthisis had any clinical value. Dr. Belfield had examined twenty-two specimens in an hospital. In all of them the bacilli were found. Upon inquiring of the pathologist who furnished them, it was found that twenty were cases of well marked phthisis, while the two remaining cases were inscribed as chronic bronchitis. But, as the doctor remarked, the demarcation line between the two diseases is often obscure.

Here Dr. Belfield exhibited the bacilli magnified 250, nd every member looked at them. It used to require a magnifying power of 800 to 1000, in order to see the tubercle bacilli, but his mode of preparing them did not necessitate such objectives. The bacillus is $\frac{1}{6000} \times \frac{1}{20}$ inch in size.

At the same meeting, Dr. J. H. Tebbetts exhibited a specimen of cancer of the stomach, and this was followed by a voluminous paper on sleep, by Prof. Lyman. It is a contribution to the *International Cyclopædia of Surgery*, and is, no doubt, the most valuable article ever written on the subject of sleep and its allied states. Somnambulism, hypnotism, and trance receive a careful treatment and their various causes were explained.

ARTICLE X.

THE CHICAGO BIOLOGICAL SOCIETY. Stated Meeting, October 4, 1882.

Dr. Lester Curtis, president *pro tem.*

MINERAL ORGANISMS AND THE ORIGIN OF LIFE.

That was the title of a paper by Dr. H. D. Valin, who repeated experiments in organic forms before the society. In January of the present year, the French chemists, D. Monnier and C. Vogt presented, through M. Robin, to the French Academy of Sciences, the results of some experiments, showing that the forms peculiar to plants and animals also appear under certain circumstances in purely inorganic things. (Comptes Rendus, Jan. 2, 1882). This is their language: "Objects endowed with well-defined shapes, exhibiting all the characteristics

of the forms met in organic bodies, such as simple cells, cells with porous tubes attached, tubes with walls or with partitions, filled with heterogenous and granular contents, etc., can be artificially produced in an appropriate liquid by the reactions of the salts, forming, by double decomposition, either two, or one insoluble salt. One of these salts must be dissolved in the liquid, while the other must be solid in form. * * * * The forms met in organic bodies (cells and tubes) being produced just as well in a liquid with an organic or semi-organic (sucrate of calcium) origin, as in a liquid of a purely inorganic origin (silicate of sodium), there cannot be henceforth any characteristic forms by which to distinguish inorganic bodies on the one hand, from organic bodies on the other. * * * * It is likely that the inorganic substances met in organic protoplasm are for something in determining the forms which living organisms assume."

Dr. Valin had repeated these experiments a number of times in the last six months, and made the following observations: In a flask full of soluble glass, were placed fragments of sulphate of iron, ten grains in weight, which immediately began to assume a colloid condition on the outside, and shot tubular prolongations, colloidal and cellular, which grew at the rate of half an inch in twenty-four hours. Some attained to two-inches in length, and were about $\frac{1}{12}$ of an inch in diameter. All these prolongations shot a number of slender filaments from various points of their surface, and these attained a length of a few inches in a few hours. After a few days or weeks all these organisms assume a crystalline condition and become empty inside. Some of them rise to the surface of the liquid. They are insoluble in water, they remain intact when exposed to air, and when introduced in a newly prepared flask at the same time with fresh fragments, they hasten the metamorphosis of these. The addition of water to the soluble glass renders the experiments more easy and saves time.

Watched under the microscope, the fragment of sulphate of iron is seen to swell all around. An unctuous, colloid mass is formed, which consists of five granules perfectly similar to animal tissues. This mass stretches into prolongations, and fluid contents are seen to flow inside these. When the surface of

some prolongations was opened into, a semi-solid substance grew out of the opening into new prolongations. One of these mineral organisms, when placed on a fresh fragment shot some new prolongations. as if real grafting had taken place.

Organisms of sulphate of copper, sulphate of zinc, alum, phosphate of iron, etc., were similarly obtained, each possessing a form peculiar to itself, and distinct from the others. Analogous forms grew in saccharated lime-water. Cellular bodies of the same minerals formed in solutions of alkaline carbonates.

These experiments relate to the almost unknown department of chemistry which treats of the colloids, and as crystalline solutions grow into symmetrical crystals, so a colloid substance in process of formation assumes a typical form, and must be the start of all forms in animals and plants. These so-called mineral organisms, viewed with the naked eye, under the microscope, or chemically tested, come as near to the lower animals and plants as these are from one another, and form a new field of investigation for the biologist. We can no longer say that only living things grow, unless we reckon these as living.

The discovery of these organisms has attracted the attention of the scientific world, the more readily since Herbert Spencer, in his biology, made the following suggestion concerning the origin of life: "The colloid is, in fact, a dynamical state of matter, the crystalloidal being the statical condition. The colloid possesses *energia*. It may be looked upon as the primary source of the force appearing in the phenomena of vitality." (Biology 56.)

Among the conclusions of Dr. Valin's paper were these: "That the vitality or growth of these mineral organisms consists in the passage of a crystal into a colloid, and is thus correlated, but not identical, with the kinetec process known as crystallization. That the molecule of these bodies consists of many elements, and that acid and alkaline polarities are always concerned in their growth, for only acid minerals in alkaline solutions gave rise to them. That we have a right to suppose that living protoplasm is nothing but a highly complex mineral organism in favorable media (water and air)."

This would tend to confirm the growing belief among biologists

that life is nothing but the energy manifested by the forty and odd (Reinke) proximate principles which constitute protoplasm, when they pass from the crystalline or soluble into the colloid state in the proper media.

In the brief discussion which followed, Dr. Clevenger asked the writer whether he believed that the growth of these minerals might not be dependent on the action of some micro-organism.

Dr. Valin answered that some micrococci had been seen in the solutions used, and that a large fungus at one time covered the surface of the water in one flask with its mycelium, visible to the naked eye. But as the minerals referred to grow instantaneously in any kind of water, and as this water remains transparent, it excludes the possibility of any bacterial action. The question was the more pertinent, however, as Alphonse Wurtz, the great chemist, made a communication to the Académie des Sciences not long ago, in which he described a vibrion which is always found in certain germinating seeds, as that of Indian corn. It seems that this micro organism is indispensable to the process of germination and that its role consists in eating into the outer coat of the seed, which thus becomes permeable to water.

IN a village in Austria there was the marriage of a rich farmer's daughter with the only son of another rich farmer. Three days and three nights the eating and drinking continued, and then all the participants of the feast took to the wedding cake. But unfortunately, this cake was poisoned, and one person died, and many others became very sick. So the court ordered the rest of the cake to be examined by the county physician. This gentleman, putting the cake, carefully wrapped up, into his overcoat, went home—a little later than usual. The next morning the cake was gone, but the physician had great difficulty in saving his wife from being poisoned.

Domestic Correspondence.

ARTICLE XI.

TO THE EDITORS OF THE CHICAGO MEDICAL JOURNAL AND EXAMINER:

The most notable movement in the medical world here, is just now the development of post-graduate courses, and of opportunities for clinical study outside of the colleges. Heretofore a very large part of all clinical teaching has been done at Bellevue and Charity Hospitals, and in the dispensaries or out-door departments attached to the three larger colleges. The ambition now is to open up New York's other medical resources, and let those who come here to study, know that they can learn a great many things ouside of college curriculums. We have now two Post-graduate Medical Colleges. One is composed largely of the old clinical staff of the University College. It opens soon, and I am told, has promise of a good attendance.

The second college is a later organization, and is called the New York Policlinic. It announces that only clinical lectures will be given upon various medical and surgical branches. The faculty is quite large and includes some very good men. Dr. G. R. Leaminu is president, Dr. John A. Wyette, Dean and Professor of Surgery. The supply of Professors is abundant, there being two on Gynecology and Obstetrics, also two on Ophthalmology, Surgery and Dermatology. Neither instructor wants to be an Adjunct, and so harmony is secured by making both full fledged professors. The college promises well, and it is hard to say now, which offers the better opportunities.

In addition to these colleges, there is a movement to utilize the clinical material of the dispensaries. This is begun by the

North-Eastern Dispensary, one of the largest, and in prospect, wealthiest in the city. Clinical courses to be given in gynecology, by Dr. J. H. Gunning; Eye, Ear, and Throat Diseases, by Dr. Simon Baruch; Skin Diseases, by Dr. Wooster Beach; Nervous Diseases, by Dr. Chas. L. Dana; Heart and Lung Diseases, by Dr. D. M. Camman.

Society work began this Fall with a session of the Medico-Legal Society. Dr. Greene M. Hammond read a paper upon "Death by Hanging," in which he aimed to show that such mode of death is painless and prompt, when the hanging is properly done. The neck is rarely broken, but death takes place by suffocation. The convulsions and twitchings often seen, are asserted to be reflex, and not to indicate suffering.

A stormy debate followed, upon the subject of the Treasurer's action in not paying certain bills.

At the first meeting of the County Medical Society, this Fall, Dr. W. F. Miltendorf read a paper on myopia. It contained a number of interesting facts. He said that myopia, or short-sightedness, had justly been called a disease of civilization, and unless prompt measures were taken to counteract the injurious influences which led to the development of the disease, it must more and more be regarded as a disease of civilized life. The most dangerous period for myopia to set in, was from the ages of five to fifteen years, and an examination of the pupils attending the schools of New York has led to the following discoveries: Out of 203 scholars attending the Thirteenth Street Grammar School only 6 were near-sighted. At Grammar School No. 58, 608 children were examined, of whom 8½ per cent. were suffering from myopia. This included 425 American children, among whom there were 34 cases of myopia, and 273 Germans, of whom 26 were suffering from myopia. At Grammar School No. 35, of 630 Americans, 10 per cent. were myopic, and of 266 Germans, 17½ per cent. were afflicted with the disease. At Columbia College 201 students were examined, and of these, 69, or 35 per cent. were found to be nearsighted; the percentage being greater in the academical department than in the school of mines. Further investigation, with a view to testing the hereditary nature of the disease, showed that of 45 Jews 40 per cent.

came from myopic families; of 82 German myopics, 29, or 35 per cent. came from myopic families; and of 160 American children only 49, or 31 per cent. had myopia in their families. In all cases it was found that myopia increased with the length of school life. Very serious complications arose in this disease by neglecting the use of glasses, and frequently total blindness resulted from this neglect.

Dr. Miltendorf especially insisted upon the early use of glasses. Perhaps it would be of still more importance to insist upon children being supplied with the right kind of disks, with sufficient light and good print. A model of the type to be used in school-books has been given by Dr. Javal, of Paris, and is reproduced by the Commissioner of education.

The type in which this is printed is as close an imitation of that specimen as can be given.

Dr. Javal thinks that "leading" does not much improve legibility, but that spacing letters does.

At the Practitioners' Society, which met this month, Dr. F. P. Kinnicutt read a very interesting paper on the "Oil of wintergreen as an efficient salicylate in acute rheumatism." The oil of wintergreen (oleum gaultheriæ) is a neutral salicylate acid, and a terebinthinate. It is given in doses of ten to fifteen minims, every two hours at first, in cases of acute articular rheumatism, just as in the salicylates.

Dr. Kinnicutt reported twelve cases, in all of which the fever and pains rapidly subsided, and the disease was apparently checked by his use of this oil. The effects seemed to be a little better than those gotten from the artificial salicylates. That is to say, there were no toxic symptoms, no cardiac depression, and no albumen in the urine. Another advantage was that the oil is agreeable to the taste, and does not disturb the stomach, as a rule. It was given floating on some menstruum, or in capsules with magnesia. In the last case, the drug is apt to nauseate, if given continuously in maximum doses.

The oil is very quickly eliminated, appearing in the urine within an hour. Furthermore, it is in quantity large enough to preserve the urine from decomposing for several days. It is suggested that it may be useful in cystitis. I believe that it has

been tried for that purpose in Glasgow, and with some success.

Dr. T. A. McBride said that he had used the oil in muscular rheumatism, lumbago, etc., with great satisfaction. He had previously been accustomed to use muriate of ammonia and tincture of iron, but then wintergreen seemed to act better. I have tried it in a case of subacute rheumatism, following an acute headache, also in a case of lumbago. It certainly appeared to produce much relief.

Dr. George F. Shrady reported a unique case of successful tracheotomy in an infant eleven months old, suffering from diphteria. The disease was unmistakable, and the child was apparently dying when the operation was performed. There has been no previous successful case of tracheotomy in so young a child in this country, though I believe that some have been reported as occurring in Europe.

The National Association for the Protection of the Insane and Prevention of Insanity, about which I occasionally inflict news upon you, continues to survive its name, and is even developing an exuberant vitality. A meeting to discuss its work, is soon to be held in Philadelphia, I am told. The association has appointed corresponding members in all the States, and intends to embody its work in a semi-annual bulletin. There are 100,000 insane in the United States, and not half of them have asylum accomodation. Asylum management itself is generally under the ban of political machinery, or of a stupid conservatism. The Associa- of Asylum Superintendents does not represent any progressive or scientific work, although it is somewhat arousing itself as a result of recent agitation. The National Association has a field for work, therefore, in attacking political charities, and in encouraging a more general study of psychiatry.

A very interesting meeting of the Academy of Medicine took place this week, when Dr. T. E. Satterthwaite read a paper upon the "Etiology and Natural History of Tuberculosis." The reader gave a summary of the various facts bearing upon the morbid appearances, imfectiousness, parasitic origin, etc., of tuberculosis.

Some of his most important conclusions were as follows:

1. Tuberculosis is a disease that is hereditary, statistics hav-

ing abundantly proved that there resides in certain families a greater or less susceptibility to the disease, which usually manifests itself in the pulmonary organs.

2. The most distinguishing characteristic of tubercle, is the occurence in the tissues, of minute, bright, glistening, translucent particles, that have been called miliary tubercles, granula, granulations, etc.

3. They are the result of an inflammatory process, because they can be produced by the introduction of mechanical irritants into the system.

4. When these minute bodies coalesce to form larger bodies and undergo a change of color, they are known as crude or yellow tubercles.

5. Some of them contain the reticulated tissue that is called adenoid; others do not, but contain indifferent cells, fibrillar tissue, etc.

6. In their gradual development, they undergo caseous change. More rarely they become cretaceous, or organized, when a cure may result.

7. Tubercles, after a time, excite inflammation *in situ*, which inflammation may be classed as a pneumonia (catarrhal, or desquamative).

8 Tuberculosis is inoculable and it "breeds true," always producing its kind if it produces anything, but other substances will also in a certain number of cases produce the same results; in fact, any organic substance that is capable of physical deterioration. It has not been satisfactorily proved that tuberculosis has a specific virus.

9. There is some good evidence going to prove that tubercle is contagious, *i. e.*, that it is capable of propagation by cohabitation, or, in other words, close association with persons that have the disease. The number of well-authenticated instances in the human being where the disease appears to have been spread in this way, indicates something more than a coincidence This relation has been shown with a reasonable amount of certainty in horned cattle.

10. And yet bovine tuberculosis differs in some important particulars from the disease in men and the lower animals, though

it is highly probable that the differences, which are mainly in the pathological appearance, are referable to differences in anatomical structure in the different animals.

11. From a sanitary standpoint, we should discountenance the use of milk or meat from phthisical cows, since if not absolutely infective, they are at least deficient in the proper nutritive elements, and for this reason alone should be excluded from the markets.

12. Though it does not appear that it can be shown that any person has ever been rendered tuberculous through the medium of bovine virus, still when the cattle used for vaccine purposes are slaughtered, those in charge of the farms should examine the viscera of all such cattle before the virus is furnished to physicians, and it should be specially understood that such an examination has been made in every instance where the virus is sold.

13. The parasitic theories of Klebs, Koch, and others, are still *sub judice*.

14. Tuberculosis and pulmonary phthisis are almost in all cases the same disease.

In the debate which followed, Dr. Francis Delafield gave a sketch of his view of tuberculosis. Miliary tubercules and tuberculous tissue were not, he said, always indentical. Tuberculous tissue existed sometimes in the form of miliary nodules, sometimes diffused. In pulmonary phthisis, there was always an involvement of many different tissues, there were various inflammations and their products, all of which tended to obscure the tubercular process. He believed, however, that a tubercular process always accompanied phthisical processes in adults, and was essential to it. In other words, phthisis is a tuberculous disease. Dr. Robert Welch agreed with Dr. Delafield's views as to the unity of phthisis.

Referring to Koch's discovery of the *bacillus*, he said he had been uniformly successful in finding the parasite in phthisical lungs and sputa. He employed Ehrlich's method of staining. Dr. Welch seemed much inclined to credit Koch's views, and advanced several arguments in its support, these being chiefly from analogies to syphilis.

Dr. A. Jacobi could not explain the clinical facts of phthisis,

except by assuming that it was not always the same as tuberculosis. He referred to the possibility of local inflammations and suppurations in children being the cause of a subsequent development of phthisis. He thought that the physician ought to watch and treat cases of measles, whooping-cough, abscesses, pneumonias, eczemas, etc., lest they become in time infective foci.

Among the three prominent pathologists who spoke, there was an entire unanimity as to the unity of phthisis and tuberculosis. The views of Niemeyer, said Dr. Satterthwaite, were based on facts which were not true. They have received a wider acceptance in this country than in Germany, according to Dr. Welsh. We now go back again to the views of Louis and Laennec.

A growing feature of some of our larger medical gatherings is the presence of women physicians. The lady doctor seems to be occupying a larger space in the public attention, if not affection, every year. A curious fact is the way in which novelists are seizing upon this class as material for imaginative studies. Howells causes "Dr. Breen" to attitudinize before his fancy, while he makes graceful comments upon her. Miss Phelps treats with more seriousness "Dr. Zay;" a German writer has taken the same subject for an elaborately philosophical romance. There is one common element in all these works of fiction, viz: the lady physician, on or about the last page, throws herself with unscientific abruptness into the arms of the admiring hero. I venture to state, from some knowledge of the lady physician, that her delineators know very little about her. The type of lady physician, at least, is not a fascinating one. The tendency of medical study is to rob woman of what charms she possessed, in the eyes, at least, of all young men. It is a curious fact, but a real one, that woman, as soon as she begins to work seriously for her livelihood, loses some of her attractiveness. There are many bright minds and noble characters among medical women, but that they offer good material for romance and love-stories, is certainly not true.

I have sometimes ventured to send you a few items "in lighter vein." It is rather discouraging to see them at once appropriated by other journals, and circulated without acknowledgment.

Herbert Spencer has just announced that the American is a failure (ethically), because he encroaches on other's rights too much, and does not defend his own enough. I beg you, therefore, to assault with your utmost editorial vigor any one who ventures to copy the following highly interesting case without acknowledging the trouble I have taken to get and copy its details. It was written by a clever surgeon of this city, Dr. Helmuth, and is, I think, rather good:

"A clever young fellow, a student at law,
Had an indolent swelling come under his jaw.
He took many drugs, still larger it grew,
Till it covered the jaw and the clavicle too.
And though it received every care and attention,
It much interfered with the act of prehension.
The pain was so great that the man became furious,
But relief came at last, when c. m. Mercurius
Arrested the sweating and slacken'd the thirst,
Then softened the swelling, which very soon burst;
But instead of 'the corn,' oh, strange to behold,
The tumor discharged quite a lump of pure gold,
Which a dentist had dropped in the gum, while essaying
To plug up a molar, long since decaying.
This morsel of gold, like an amœboid cell,
Worked its way to the surface; how, no one could tell,
But it shows how Dame Nature may sometimes grow bold,
Like most other women, and throw away gold.
The patient's delight can't be told in this stanza,
For he fancied his jaw had become a bonanza."

NEW YORK CITY, OCT. 21, 1882.

ARTICLE XII.

NEW YORK, OCT. 14, 1882.

MESSRS. EDITORS:—There seems just now a great fever on the part of a large number in the profession to have the title *Professor*. In this city a new "post-graduate school" has been conceived, and is about to be delivered to the professional world. What the infant will amount to we can't tell. Its birth is expected early in November. By its advent, several hitherto unknown men will be launched into the world as professors, and perhaps the wailing

and suffering public will be glad to know the merits of these professors. But this is not enough, for, by the opening of the more school, a few men have been left who do not own a medical college, and who cannot be styled professor by the admiring public; and as the title "doctor," as a mantle to cover their ignorance and wish for distinction, had become rather a common garment, they too want the fashionable cloak of professorship to cover the too thin but honorable vestment, doctor.

Therefore the times are pregnant with about-to-be-opened colleges and new style schools, wherein the few men not now connected with a medical school can be taught by these self-appointed and highly skilled professors. That these professors may have clinical material for the illustration of their knowledge, new and free hospitals and dispensaries are being opened and largely advertised to the public. To satisfy the demand for clinical material at these free treatment hospitals, the city of New York is thoroughly canvassed, and any deficiency supplied by bringing patients from the neighboring cities. What are we coming to in the near future? Perhaps in the near future a new line of steamers will be run by an organization of professors, bringing a supply of clinical material from London or Paris, or from the other side of the sea. However, before this enterprise is carried into effect, there will be a strong effort to use all sick persons in the city of New York and vicinity, and to "encourage home trade," a small sum will be paid every such patient (perhaps fifty cents or one dollar) at each time he appears for the illustration of the professor's skill and wisdom.

The title of professor being in such demand, would it not be supplying a "need long felt" to establish a school granting a diploma and conferring the title of professor, which means that the owner does not wish to advertise (in a manly way), and that he believes in the doctrine of professors, viz: that the big fish were created to eat the little fish. Then again, a new occupation for young men will be opened; for as professors increase, the supply of men to listen and admire at the clinics will be too small to go around, every professor will employ several listeners and admirers, paying them each a salary by the year to attend and applaud his clinics. It is to be hoped that the earnest enthusiasm

now shown in the business of teaching each branch of medical science and art will not assume sufficient proportions to seriously affect the general prosperity of the land, by withdrawing so large a number of men from general manufactures. It is to be hoped, also, that there will remain in the medical profession a sufficient number of men who will devote themselves to earnest and honest study of professional duties, and thus keep up a line of succession of the true physician and surgeon or doctor. W.

MEDICAL TROUBLES IN MAINE.—No doubt but that our New York medical friend is right, and an echo of the same sentiment comes to us from Maine. It appears that the Maine General Hospital was foisted upon the State Medical Society; and now the country practitioners find that it attracts their paying patients, who go there to be operated upon, when they could be treated as well at home. The hospital is widely advertised. The same dissatisfaction is felt toward the Medical School of Maine. Attempts at remedying some of these defects will form the subject-matter of another meeting. H. D. V.

ARTICLE XIII.

TAMA CITY, IOWA, Oct. 16, 1882.

EDITORS JOURNAL AND EXAMINER:

From the language used by Dr. Theodore Turnbull, of Monticello, Florida, in the August number of the JOURNAL, I judge that he believes quinine will, and is very liable to, produce abortion. I have given quinine to five pregnant females, in doses ranging from 15 grains to 40 grains per diem in divided quantities, in intermittent and remittent fevers, without the first untoward symptom, each case terminating in a recovery, while gestation continued to full term. One of the cases—a member of my own family—was troubled with "chills and fever," suffering quite severely from the fifth to the seventh month of pregnancy without obtaining the least benefit from a faithful trial of the different substitutes for the cinchona alkaloid. I had read that quinine was "a stimulant to the muscular fibers of the

uterus," hence I concluded it would be dangerous to use it under the above circumstances. I remembered my worthy professor of materia medica and therapeutics, as saying, that "quinine, although a stimulant to the uterine muscular fiber, was rarely certain in its influence except when that organ was in a gravid state; and then, the nearer the time of confinement the more certain its action." He then recommended it in slight post partum hæmorrhages. After thinking it carefully over, I concluded to risk it, as the patient was becoming quite ænemic and did so. The malarial influence was rapidly driven out of the system and now—eighth month of her pregnancy—she is enjoying excellent health with no return of the trouble, under the pernicious influence of from 40 grains diminished to 10 grains per diem.

I have asked several of the oldest physicians in this (Tama) county, and all say they use quinine without reference to the pregnant or non-pregnant state.

F. W. GOODING, M.D.

ARTICLE XIV.

ELGIN, ILL., OCTOBER 7, 1882.

EDITORS MEDICAL JOURNAL AND EXAMINER:

A Mrs. C., æt. thirty years; mother of two living children, a boy of seven, and girl of five years. This patient was treated by me during the years 1877-8, for abdominal dropsy. She was very large when first seen by me. She stated to me that her former physician first located the tumor in the left hypogastric region. That was two years previous to my first seeing her. She was considerably emaciated, and vomited a great deal. I performed paracentesis abdominis, an inch and a half below the umbilicus; drew off about three gallons of fluid. During my treatment of about two years, when she died, I tapped her six times, drawing off about 150 lbs. of fluid. Every tapping relieved her for awhile.

Post mortem revealed hundreds of cysts in the peritoneal sac, of

all colors and sizes (the largest about the size of a medium-sized orange), in clusters like grapes; the contents of these cysts were very gelatinous. During the operation, many fell on the floor. So slippery was this stuff, that it was very difficult to grasp it in the hand. It would slip out and shake like jelly. What were these cysts? Were they *echinococis hominis?* I never saw the like before, nor since. I had to assist me in the post-mortem Dr. Fisher, of Matagordas, Texas. This sight to us was very interesting and marvelous. Some time has elapsed since that, but I have often thought of it, and wished that I was better enlightened on the subject of what constituted and what caused these hundreds of cysts of all sizes and all colors. There did seem to be a connection with the left ovary. The uterus was healthy. It may be that this condition of things is common in peritoneal dropsy, but I had treated a number of cases, but never before witnessed it.

H. ROSENCRANS, M.D.

THE SOCIETY OF PHYSICIANS AND SURGEONS OF MINNEAPOLIS.—A medical society under the above title was organized October 15, by the regular physicians of Minneapolis. Its corps of officers for the ensuing year is as follows:

President, Dr. O. S. Chapman; Vice-President, Dr. S. Keith; Secretary, Dr. Charles W. Drew; Treasurer, Dr. E. J. Brown; Board of Censors, Dr. S. F. Hance, Dr. A. B. Cates, Dr. W. H. Byford, Jr.; Committee on Ethics, Dr. Geo. F. French, Dr. F. E. Towers, Dr. W. S. Laton; Committee on Entertainment, Dr. A. H. Hedderly, Dr. J. E. Moore, Dr. H. N. Orton. Success to them. There are also significant signs of the early foundation of a college of pharmacy in Minneapolis.

ANTISEPTIC COLOGNE.—

℞ Eau de cologne.....℥viij.
Chloral hydrate.....℥ij.
Quinine.....gr. x.
Carbolic acid (pure).....gr. xxx.
Oil of lavender.....gtt xx. M.

Editorial.

THE LATEST SPHÆRO-BACTERIUM.—A GOOD THING TO HAVE IN THE FAMILY.

We publish in this number two original communications, in which will be found a record of certain extraordinary facts, relating to a case of tetanus.

The circumstances of this case may be briefly recapitulated, as follows: Two eminent physicians of this city are in attendance upon a lad affected with perfectly typical tetanus, resulting from a wound in his hand inflicted by the explosion of a toy pistol. They determine to examine his blood with the microscope, and, having done this, discover that it is swarming with organisms precisely similar to the sphæro-bacteria recognized in the ill-conditioned pus removed from an abscess communicating with a joint. The blood of a horse affected with tetanus is then placed by them under the same objectives, and in it also similar organisms are discovered. Not content with pushing their investigations to this point, they proceed to examine the mother of the boy who is their patient, and also another of her children; and to their surprise find in the blood of each an abundance of the same germs. A neighboring frog-pond is finally searched, and found to furnish masses of the same bacteria. The boy recovers from his tetanus, and is taken before a body of scientific gentlemen in this city, where his blood, still swarming with bacteria, is placed on slides and examined by a dozen or more physicians and others of unquestioned discrimination and veracity. All are able to recognize the existence of the bodies to which their attention is directed

These are, indeed, remarkable facts which do not precisely

correspond with the lessons we have been taught of late in the rapidly multiplying inferences deduced from the studies of the germ-theorists. What, then, let us ask, is their real significance, and how shall they be wisely interpreted?

There could scarcely be a more appropriate time than this in which to ask our friends, the micro-pathologists, to withdraw their keen eyes for a moment from their mounted specimens, and to indulge in what Mr. Tyndall was pleased to recommend as the scientific use of the imagination. Here, surely, the theoretic philosopher should be able to step in, and, reviewing the entire field, evolve from the mass of accumulated facts an hypothesis which will at once and satisfactorily explain them all, and gratify the scientific appetite which they have naturally stimulated in the highest degree.

For example, there is the hypothesis which might be termed, following the clever suggestion of Max Müller, the "Too-too" theory. According to this, the sphæro-bacterium, of the blood at least, should be recognized as an altogether pleasant and lovely schizomycete, dancing away its dizzy life in the vascular channels with a levity born of utter guilelessness. Its ultra development at either extremity, suggests a species of bi-polar assimilation, by which at either end it is capable of making part of itself rod-bacteria, for example, and other small game found poaching on its preserves. Compared with such an aliment, how the famous Diet of Worms shrinks into utter insignificance! This, doubtless, is the meat on which our micrococcus hath fed, that it hath grown so great! In this simple way, also, we discover an explanation of its sprightliness; for who does not know that only well-fed and well-housed organisms are capable of spinning in such lively motion, or, coupled with their fellows in chains of spores circling around the red blood disks, of engaging in the pastimes peculiar to youthful and healthful activity? Here, indeed, is no spectral corpuscle like that invisible and ghostly hæmatoblast over which Norris and Bizzozero have set themselves in array to do battle. Here, neither, is a coy and reluctant bacillus which refuses to materialize save under the persuasive influence of Weigert's fuchsine, or of Hansen's methyl-violet, or of Gibbes' diphenolrosanilin. This is a robust, rotund and almost portly

micrococcus, with either a double chin or a double belly, as the observer may choose to regard it, and an expression of benevolence in its every feature, and of happiness in every one of its motions.

Or, again, we are at liberty to adopt an explanation, which, still following Max Müller, we might term, the "Gone wrong" theory. This is, we may remark in passing, dimly shadowed forth in the remarks made lately by Mr. Faraday, in connection with the subject of bacilli, before the British Association for the Advancement of Science. According to the latter, there may be several varieties of these interesting organisms, which outwardly resemble each other in every feature, but exhibit the widest divergence in their naughty actions. Thus there are some which are as gentle as any sucking dove, and as harmless as a kitten, a class to which may be assigned the Curtis-Brower sphæro-bacterium. These have, however, half-brothers, not even to be distinguished from the former by a strawberry mark on the sinister sphere of the dumb-bell, who have gone utterly wrong, and thus become, by a process of natural cultivation "in the presence of a reduced amount of oxygen," half-starved vagrants. These are they who have "acquired a parasitic habit," or, being slightly better fed and housed than the very lowest of these criminal classes, have undergone "transformation from a harmless saprophyte" into a thoroughly vicious "sport." This view is so entirely natural and in accord with the doctrines of evolution that it commends itself at once to the student of social morphology. If it could but once achieve a general acceptance, there is probably not a lover of the human race in the whole world, who would not regard with feelings of unspeakable horror, the proposition of M. DeKorab, who, finding lately that helenine exercises a destructive action upon these germs, proposes to engage aniline, red-handed, in the task of obliterating, in one common slaughter, both varieties, the micrococci of good and the micrococci of evil, examples of which are well furnished in the spæro-bacterium of Messrs. Curtis and Brower on the one hand, and the tubercle bacillus, on the other.

But a third, and decidedly the most plausible explanation of all these facts, might be described as the "Saw-dust Doll" theory.

According to the latter, all these micrococci should be regarded in the light of inestimable benefactors of the human family. It is only when men, women and children begin to lose their precious bacteria, that danger arises. Thus when the sputa, the pus, or physiological secretions become carriers of these natural blood-purifiers out of the body, it is time to take counsel of the wise, not to commit the fatal blunder of engaging in an attempt to still further reduce the number and efficacy of the bacteria which remain. In this view, a tardy justice is done to these small friends of the family of man, whom we had begun to regard with a hatred and malevolence for which Ehrlich, Koch, Eklund, Neisser, Carter, and we know not how many more, should be held to a rigid accountability. When, by a yet undescribed pathological process of weakening of the vascular walls, the sphæro-bacteria, which should rather have remained within to perform their kindly offices, have leaked out, whether into the outer world or into other tissues of the human frame, there have we discovered them, and there, too, have we blindly misconstrued their presence. Starved and attenuated forms, skeletons of the ampler and better fed blood organisms, can thus in rod-like relics be detected in the sputa of the tuberculous; while débris of similar micrococci leak into the bullæ of pemphigus and lepra, or drip from the person in the greenish-yellow tears shed by the urethra, which is penitently mourning for its sins in the past.

We understand that the Chicago bacterium is to be cultivated, and in soup! By all means the best of *consommé* for such a genial guest! And let the strain be carefully preserved, with the jealous care, indeed, of those who have now so long guarded the virtues of the "Beaugency" stock.

On such a soup stock as this, one would scarcely dare to set a value, so soon as its real merits were made known to the world at large. In comparison with it, how helpless lies the prescription of that obliging clergyman, whose sands of life have been running out, lo, these many years! Upon how slender a basis, too, rest the claims of that sovereign compound, whose trade-mark, plastered upon every print in the country, are the sedate features of a matronly female, behind whom, it is said, are

the faces of two young men in Boston, grinning at the easy credulity of the weaker sex. Indeed, in comparison with such a blood remedy, for which children might well cry and adults lament, do not all others seem inert and destitute of virtue!

Upon what it may be competent to accomplish in other cases, we are not in position now to pronounce, though one might well be dazzled by the brilliancy of the prospect. We can merely speak with confidence of the searching test to which it has been subjected in this city, under circumstances to which attention is here directed. For assuredly it carried one boy safely through a frightful attack of tetanus, and did not desert him when he was long convalescent from the malady; sustained his mother, nursing with sore anxiety her only son, on what she fully believed to be his death-bed; gave her, at the same time, the strength to suckle an infant at the breast, which, at latest accounts, is a noteworthy example of a blooming and round-limbed baby; threw its protecting ægis over still another child of the family, a little girl, who also survives in a vigorous and rosy condition of health, and, lastly, enabled the mother, at the same time, to attend to the numerous calls of her customers, to whom she was in the habit of dispensing over her counters a superior quality of foaming lager beer!

Is there any one, who, under the circumstances, will refuse to assent to the proposition, that this Chicago bacterium, is a "good thing to have in the family?"

IT is claimed by one writer, says a contemporary, that one and one-fourth more money is expended annually in funerals in the United States than the government expends for public school purposes, and that funerals cost annually more money than the combined gold and silver yield of the country in the year 1880. This does not include the cost of cemetery lots and burial fees.

ONE hundred and ninety-six bodies have been cremated in Milan in the last five years.

Translations from Foreign Exchanges.

RUPTURE OF THE UTERUS AND ITS PREVENTION IN LABOR.

By DR. HOUSMANN, of Berlin, Germany.

The attention which lately has been directed to the stretching of the cervical canal and the lower part of the uterus as the principal cause of rupture of the uterus, has enriched our knowledge of the mechanism of this proceeding, but it has not entirely given the explanation of all causes in these accidents. For instance, Hofmeier could not detect any lesions of this part in the autopsy of a woman who had died from rupture of the uterus, and who had borne four children. The stretching of the canal often changing, according to the casualties in the act of labor, it requires different means to prevent the rupture of the uterus. I have observed instances of imminent rupture in two confinements of the same woman, and I have prevented the rupture in both cases by a suitable change of position. Mrs. X., a normally built and well developed woman, has had neither rachitis nor any other disease of the pelvic bones, but she has suffered from an inflammation of the genital tract five years before marriage, from which remained a chronic endometritis. Married when twenty-three years of age, she became pregnant after about nine months. On the sixth day of January, I found the head of the child very movable, a circumstance rather uncommon in a primipara. Two days after labor, pains commenced, and at noon of the same day, I found third position of the head, os-externum dilated to two cm. in diameter. Pulsations of the fœtal heart, 138 on the right side. The pains being slow, the woman walked around. But at night the contractions became severe, and in the

meantime the abdomen was very sensitive. I found the head progressed into the vagina, but covered with a delicate membrane. The os-externum was situated behind the fœtal head, and high above the narrow posterior part of the vagina. It remained flabby even in a pain, except the anterior lip, which was pulled down by the descending head, the latter being covered, as usual, by the membranes. According to the examination, there was no doubt that the anterior part of the cervix uteri, and also the anterior vaginal wall were stretched downwards to a considerable degree, the head being felt through these membranes; there was imminent danger of rupture of the anterior uterine wall. The pelvis was normal, the measures being as follows: Spr. f., 25.5 cm., inbr. f. 29.0 cm., trochant; 31.5 cm., diameter 20.5 cm. There was no hydrocephalus of the child's head, and the fœtus could be felt through the abdominal walls as being without any deformities. There was no spasm of the external or internal orifice. I ordered the woman to take a sitting position, in order to retract the head into the uterus, but there was not the slightest change, the labor pains becoming severer, the anterior wall of the uterus and vagina being thinner and more painful. I now ordered the knee-elbow position, with deeply retracted shoulders, for the purpose of thus bringing the fundus uteri and the buttocks of the fœtus in front, and the head in the axis of the pelvis, the stretched parts being thus released from the pressure.

The success of this procedure was complete, and the stretching relaxed; the pains were normal, the os-externum dilated, and after three hours the woman could take the regular position. The next morning the fœtal membranes ruptured, the fœtal head descended but slowly in the œdematous infiltrated vagina, and when the heart sounds became less than 100, I extracted the asphyxiated child with the forceps. The circumference of the brachycephalic head was 33.5 cm., and the boy has yet, to-day, the remains of ecchymosis on his right foot, as a result of extravasation of blood in beginning asphyxia. A slight rupture of the perineum was healed by two sutures, *prima intentione*. A following perimetritis on the anterior uterine wall was treated with leeches, ice and injections of a 2 per cent. carbolic solution. Six weeks after confinement

the menses reappeared, and six months afterward the woman became pregnant again, but she had an abortion at the end of the second month, while traveling in the mountains. In October, 1880, the menstruation ceased again, and in July of the next year labor pains set in. The examination showed the same phenomena as the first time, and I immediately ordered the knee-elbow position. Then the labor pains set in rapidly, and a healthy girl was born spontaneously. The woman had no trouble except a slight catarrh of the bowels, and later, a mastitis. The case is similar to those of Bandl, Hofmeier and Trommel, being a stretching of the cervix and the lower part of the uterus. But here there was a young woman with a normal pelvis, a normally built child, no spasm of the orificium and normal labor pains. The very extensive stretching of the anterior vaginal wall caused œdema of the same, which, in return, acted as an impediment in the regular course of the labor, preventing the turning of the fœtal head forward, and forcing me to take refuge to the forceps. The case shows also that this accident will reappear in a succeeding confinement, and it is worth remarking that both times the fœtal head was directed into the axis of the pelvis by suitable change of position, thus disburdening the extensively stretched anterior uterine and vaginal walls The cause of the deviation of the child's head is found, I think, in the inflammatory processes before marriage, which caused a fixation and shortening of the posterior cervical wall, preventing complete dilatation. But it is strange that this accident does not occur oftener, the inflammatory processes existing, doubtless, in a large number. On the other hand, I think it possible that a retarded development of the anterior cervical wall existed, directing the fœtal head to this part. After all the experiences in these cases, I think it probable that a succeeding confinement will be accompanied by the same accident, in which case the position of the parturient woman has to be changed, as stated above.

TERTIARY SYPHILIS.

The symptoms of tertiary syphilis change according to the seat of the lesions. The mouth, the nose and the nasal cavities are often the seat of the most detrimental lesions. There is either a

tissue suppuration, which destroys entirely the affected parts, or ... ulcerations. The osseous tissue can be affected in ... as in caries. The ulcerations produce a purulent ... mixed with blood, and of a very disagreeable odor. ... necrosis of the bones sets in, which fall out, or, as ... they remain, but the suppuration is continued. ... incurable. There is perforation of the nasal cavity ... the nasal bones, which gives the patient the ... appearance. Upon perforation of the palate, the ... communicates with the nasal cavities, which gives the ... peculiar nasal voice, and the food enters into the ... cavities. If the posterior part of the pharynx, the ulcer- ... destruction of the posterior nasal cavities. The ... glands are often diseased, in phthisic lesions, but there is ... carried further in this direction. The diagnosis is ... based upon other phe- ... diseases is rather ... in females than ... the vagina and the ... These certain accidents ... of potassium ... the diagnosis of syphilis ... with the digestive ... The ... the liver are ... ...

sence of the voice without pains In tertiary syphilis there are gummatous tubercles, suffusion of the glottis, and of the vocal cords. The new growth causes narrowing of the larynx; an active hyperemia produces congestion in these parts; there is œdema and impeded circulation to such a degree that the patient may become asphyxiated. In these cases, tracheotomy should be performed. These lesions are all very dangerous, and the treatment should be energetic. The affections are very complex; ulceration, necrosis, destruction of the cartilages, laryngeal and perilaryngeal phlegmon may occur. The nervous centers are equally affected. The meninges, the dura mater, the pia mater, and arachnoidal membrane are the seat of the lesions, as well as the brain substance. The meninges are inflamed and often adherent; they form a yellowish swelling which adheres to the cortical substance, and are diffused over the brain substance. The gummatous tumors are not so frequent around the cerebral mass, they are seen more often on the base of the chiasma of the optic nerve. There is a yellowish mass in the center, and a fatty one on the periphery. The true lesion of the cerebellum is produced by round tumors, and the morbid progress has three phases, that of congestion, hyperæmia and destruction. But before the diseased part is entirely destroyed, it passes over into a state of softening. The syphilis affects the arteries of the brain; the caliber of the vessel is narrowed, as in atheroma. There is impeded nutrition of the brain; the afflux of blood is therefore diminished, and sometimes there is thrombosis of the basis cranii. If there are nervous troubles, not ordinary in common cases, it will be necessary to look for other syphilitic symptoms. If there is hemiplegia suddenly on the right side, the patient being conscious, and if sensibility is not so much disturbed as in common hemiplegia, if there is diplopia, deviation of the eyes, dilatation of the pupils and incomplete aphonia; when the patient speaks imperfectly; when he cannot compose words, nor express himself except by mimics or by writing, it is safe to direct the treatment against tertiary syphilis. Headache, with aggravated pain, sometimes taking the form of delirium, and this mostly at night, is another symptom of cerebral affection in this disease. The genital organs are in a state of weakness. The troubles of vision,

diplopia, dilatation of the pupils, vertigo, and progressive loss of memory are the phenomena of tertiary syphilis. Epilepsy due to syphilis is accompanied by paralysis and deviation of the eye. Syphilitic paralysis is merely a pseudo-paralysis; the weakness of the mental faculties is less than in general paralysis, and there is no delirium. The treatment consists of large doses of iodide of potassium and frictions with mercury ointment.—*Le Praticien.*

PERFORATION OF THE ŒSOPHAGUS BY A SWALLOWED PIECE OF GLASS—EXTRACTION OF THE SAME THROUGH THE ANTERIOR WALL OF THE ABDOMEN; RECOVERY.

The patient, a merchant, twenty-seven years of age, swallowed a piece of glass by hastily drinking a glass of beer. There immediately followed a severe pain in the upper part of the œsophagus, and an hour afterwards a severe cough. Afterward, all the symptoms of stenosis appeared, solid food could not be swallowed, and often not even liquids. One year after the occurrence a high fever set in, and a cupful of pus was expectorated. The formerly healthy and muscular man became emaciated. Two years after the accident, he entered the Augusta Hospital, at Berlin. The most striking phenomenon was a severe and continuous cough on pressure at the epigastrium, and there was a very sensitive spot on the ensiform appendix of the sternum. On first admission liquids were swallowed easily, but after two weeks everything was vomited, and the patient had to be fed by the œsophageal tube. In introducing this tube, there were severe pains when the tube reached the cardia. The food was easily digested. Thus the patient was kept for two months, and the cough was relieved by hypodermic injection of five drops of chloroform into the epigastric region, but gangrene of the skin prevented the continuation of the injections. When the slough of this gangrenous spot was removed, there the long missed piece of glass was seen, looking through the abdominal wall, and it was at once removed by a small forceps. It consisted of a triangular piece of window glass, with sharp pointed edges, $1\frac{1}{2}$ cm. long and $\frac{1}{2}$ cm. on the basis. The cough disappeared entirely, but

it took about three months before the patient could take and retain solid food. After this time he recovered entirely.—*Med. Chir. Centrblatt.*

PERMANENT DRAINAGE IN HYDATIDS OF ECHINOCOCCUS.

A young farmer woman was affected with a large abdominal tumor, and by aspiration a liquid was drawn off, filled with hydatids. After puncture the cyst became smaller by spontaneous insulation. On the thirteenth day, severe pains set in, and the tumor became as large as before. Now a trocar of medium caliber was introduced, and 5 liters of a turbid liquid withdrawn. A rubber tube, with a bag attached, was then inserted, the end of which was conducted into a basin filled with water. A suitable bandage was applied to make the tube immovable; thus a continuous aspiration was effected. About 66 ounces were withdrawn afterwards, and in twenty days the patient left the hospital entirely cured. This procedure shows that an echinococcus cyst may be cured without incision, without application of caustics, and without causing the walls to adhere to the neighboring organs. Aspiration thus performed causes cicatrization of the cyst, it impedes the entrance of air, and it is without any danger.—*Gazetta Medica Italiana.*

VERTIGO DE MENIÈRE.

The patients afflicted with this disease are able to tell their own story, because they do not become completely unconscious. In the moment of the attack they hear a noise like that of an engine, and then they fall down forward, as if struck by a superior force, the latter being often so strong as to cause bruises of the nose or loss of teeth. After a while they will rise again and begin to vomit; they fall into a stupor, which lessens by degrees. After one or two weeks the attack will be repeated with the same phenomena. In a certain number of cases, the disease appears in the above described manner; the patients being well the rest of the time. But in a good many cases a permanent vertigo exists, with constant noises in the ear like that of a drum or a whistle. When the noise is aggravated, the attack will follow

M. Charcot has at the present time a patient who has been in bed for the last five years, and who avoids the least movement, which latter produces a feeling as if she would be raised in the bed very quick and then be lowered just as quickly. The noise may be due to an accumulation of cerumen in the ear, in which case the removal removes the noise. But more often it is due to simple otitis, or to another affection in the inner ear. M. Charcot treats these cases by the use of quinine, and says that this is a sure remedy.—*Journ. de Médic. et Chirurg. Prat.*

ON OSTEOTOMY AND TARSOTOMY IN CLUB-FOOT.

The surgeons of all countries, and of good authority, practice in cases of club-foot, ablation of the astragalus, scaphoideus or cuboideus; others perform resection of the same bones, or even of the calcaneus, and that for all the different kinds of club-foot in children, as well as in adults. This practice M. Jules Guérin thinks useless and detrimental to the affected persons. The surgeons who perform tarsotomy ignore the fact that the veritable club-foot is due to muscular retraction in the limb and foot. The only means to reduce all forms of club-foot, whatever its mechanical etiology may be, are tenotomy, manipulations and surgical apparatus. By tenotomy, M. Jules Guérin, in 157 cases, has completely cured 61; improved, 49, the rest having not remained under treatment, or died from accidents. Old cases of club-foot which have remained from the time before orthopædic surgery was introduced, it is better [illegible] these persons being used to progression in their own [illegible] tarsotomy offers another impediment in the treatment [illegible] articular surfaces and the normal connections [illegible] class of deformities [illegible] mous deformities and [illegible] but these do not belong [illegible] *Paris.*

SOME RARE [illegible]

MALE URETHRA.

The pathological [illegible] urethra has been hitherto [illegible]

peutical means are also defective. This is very easily explained by the very rare occurrence of death in persons affected with chronic blenorrhœa. The two following cases in which autopsy was made, throw some light on the pathological conditions of this disease. In both cases, there were excrescences on the surface of the urethra. These excresences have been very seldom referred to, but Morgagni had already mentioned them in A. D. 1745; also Hunter, 1835. Rokitanski mentions them especially as growths, substituting the callosities of the urethra, which have sometimes a papillar structure, and an appearance like condylomas. Birsh-Hirshfeld says that polypous excrescences are very rare in the male urethra, but more often found in that of females. The question whether these excrescences are true gonorrhœal warts, or whether they result from a so-called gonorrhœal abscess, is not yet solved, but the treatment would be accordingly a very different one. Our first case was that of a laborer forty-nine years of age, who began to suffer from blenorrhœa urethræ eighteen months before his death, and who had also balano-posthitis and peri-urethritis, followed by formation of abscess, which was opened through the perineum. A bougie of two mm. passed the urethra. At first the flow of urine and pus was free through the opening of the abscess, but soon infiltration of all the soft parts from the angulus penoscrotatus down to the tuber ischii followed, with gangrene of these parts. from the effect of which the patient died. The autopsy showed a stricture of the urethra in the highest degree, hypertrophy of the bladder, suppurative cystitis, and gangrenous peri-urethral infiltration. The urethra showed in the fossa scaphoidæ two elevated red spots two cm. in diameter, and contrasting by their color with the surface of the scaphoid fossa and the post-scaphoidal region. The region about the caput gallinaginis was discolored. The surface was rough, the most part in suppuration, and near the orificium urethræ there were excrescences. The microscopical examination showed ex- in the scaphoid fossa, distinctly different from the papillæ. They consisted of hyaline granular substance, epithelium. On the surface of the postscaphoid part seventeen excrescences, about 1 mm. high, of a cylindrical epithelium. The

CONGENITAL DOUBLE LUXATION OF THE FEMUR.

A primipara, thirty-five years of age, showed the following characteristic deformations: The great trochanters were situated more than 2cm. above the line of Nélaton, the femoral head was felt in the external iliac fossa, there was anteversion of the pelvis, and lumbar lordosis, no rachitis. The delivery of the child was accomplished easily by the forceps, but three days afterwards the woman died from septicæmia without inflammatory processes in the pelvic organs. At the femoral articulation, there were all the lesions due to congenital luxation. The cotyloid cavity was diminished to about three-fourths of its regular capacity, and it was generally atropied. The false articulation was formed in the upper and anterior part of the external iliac fossa, its circumference being about 6cm.; there was cartilage on the borders, and the Haversian canals were dilated. This lesion was on both sides. The neck of the femur was very small and of a conical form. The pelvis was asymmetrical. The promontorium was not in the median line, and there was atrophy of the left ilium. The lumbar column was lordosed. The most prominent deviation was in the transverse dimension, the antero-posterior diameters being also enlarged.—*L' Union Médicale.*

HYDROPS SINUS FRONTALIS.

Mrs. D. A., 72 years of age, had a catarrh of the nose twelve years ago, which was followed by obstruction in the nares. The left eye was inflamed and successively dislocated downwards, the upper lid being immovable. In the upper angle of the orbit, there is a fluctuating tumor, in the deeper part of which is palpable the margin of bone. After incision, a large quantity of a serous pus is removed. In the deeper part, a bone defect is visible, and this having been enlarged the finger can penetrate into the frontal cavity. A tube is inserted, and injections made into the cavity. In about two months the wound was healed. Erysipelas in the region of the [illegible] a month, and after incision [illegible] A curved trocar [illegible] nasal cavity, and [illegible]

from the wound, the other from the left nasal cavity. After several months, the tube was withdrawn, and a silk thread inserted. Recovery was then complete after a short time.—*Med. Chir. Centrblatt.*

FIVE CASES OF TRANSFUSION OF BLOOD INTO THE PERITONEAL CAVITY.

Ponfick has demonstrated by experiments that any quantity of defibrinated blood injected into the peritoneal cavity, will be absorbed with great benefit by any animal. Korzarowski, of Posen, has made these injections in five cases on the human person, with the best results. (1). Nephritis, articular affections, fever, profound anæmia. Two injections of 500 grammes of defibrinated blood into the peritoneal cavity, cure. (2). Nervosity, hysteria, spinal irritation and anæmia. One injection, radical cure. (3.) Phthisis well developed, after the first injection the appetite returns, fever and night-sweats disappear. (4). Anæmia, extreme weakness, patient in bed for three months. Eight days after injection of 600 grm., patient walks around; complete cure after three months. (5). Alcoholism, typhus exanthematicus, decubitus, pulmonary affection, 400 grm., injected, cure.—*L' Union Médicale.*

A NEW METHOD OF EMBALMING.

Instead of taking a solution of chloride of zinc, the following mixture is recommended: Thymol, 5 parts; alcohol, 45 parts; glycerine, 2,160 parts, and water, 1,080 parts. The injections made with this solution have the advantage of not being offensive, the instruments are not destroyed by it, and the bodies will be conserved any length of time, being mummified without putrefaction.—*Lyon Médicale.*

SARCOMA OF THE TESTICLE.

The patient, a strong man of forty years, has had a swelling of
last eight years. He was tapped first
operation the testicle grew smaller.
sion of the testicle, and it swelled

rapidly to the former size. He was then tapped twice without result. The tumor was as large as two fists, not painful and fluctuating in some places. The cord was normal, as was also the prostate. There has been no syphilis, and hydrocele was excluded. The operation was made in the usual way, three secondary hæmorrhages occurring. The microscopical examination proved the diagnosis to be sarcoma.—*Revue Médicale.*

ONE KIDNEY.

In the autopsy of a young boy, nine years of age, there was found but one kidney (the left). The right kidney and also the right ureter was absent, as also the orifice into the bladder of this side. The left kidney was normal, its weight being 160 grammes. The arteries of this kidney were two in number, having a division on the left lateral part of the aorta, the upper one more voluminous than the inferior. In the neighborhood of this division, two small arteries were developed, which ran into the neighboring cellular tissue. The prostate was symmetrical, but there was but one seminal vesicle.—***Progrès Médical.***

STRETCHING OF THE MEDIAN NERVE.

In hunting, a man was shot in the left arm. Paralysis of the forearm set in, with excessive pains. The piece of lead could not be found. The median nerve was paralyzed, and the muscles of the forearm and hand atrophied, the pains being intolerable. An incision 3 cm. long was made, the enlarged and indurated nerve laid bare and stretched. The wound healed, *prima intentione.* The pains were then moderated and more of a neuralgic character, and after a while they disappeared entirely. The paresis of the muscles diminished, and by galvanic treatment the patient was cured.—*Le Praticien.*

PILOCARPINE IN POLIOMY[illegible]

A patient [illegible] brom. of [illegible] city without [illegible] pine, 0.20 in [illegible]

ten liters to two liters, and the quantity of urea was reduced from nine grm. to three grm. The weight of the body increased to eight kilogrm. in two months' time. In poliura glycosurica, the sugar disappeared after a short time. Fifteen injections will generally cure these diseases.—*H. Morgagni Giornale.*

THE following deaths from carbolic acid are reported: A man who had his hair clipped off was painted with carbolic acid over two-thirds of the head for some disease. He complained immediately about pains and dizzines in the head, became unconscious after a few minutes, and died shortly afterward. Three girls were painted for scabies all over the body with impure carbolic acid, and they became unconscious after a few minutes. Two carpenters had used carbolic acid against scabies; one of them cried suddenly, became intoxicated, and died after a few minutes; the other became unconscious, but he recovered. A child of fourteen months fell upon a bottle filled with a strong solution of carbolic acid; the bottle broke, and the child was covered with the acid. Death followed a few minutes afterward. A midwife applied a small compress soaked with carbolic acid to a suppurating spot on a little child, which died after two hours. Experiments on animals have proved that carbolic acid brought in contact with the bowels or peritoneum will produce shock and collapse.

BY a decree of the Russian minister of war, the Jewish military physicians in that country are banished from all central and divisionary administration, as also from all the large ports. They are not allowed to be stationed at Odessa, Kieff, Warsaw and Karkoff. All these Jewish physicians stationed there are discharged or sent to distant ports in Asia. A good many of these physicians have done excellent work in the last Turkish war. Oh Russia!

THE Congress of Hygiene and Demography was held at Geneva, from the 4th to the 9th of September. The great event was debate between Pasteur, of Paris, and Koch, of er not being able to master the French lan- mained the victor.

THE National Hygienic Congress of the Argentine Republic will be held at Buenos Ayres this month, as the *Revista Medico-Quirurgica* reports. The most important question will be obligatory vaccination. During the last twenty-six years 6,755 persons have died from small-pox in Buenos Ayres, and in the country 11,635. A peremptory law will be introduced making vaccination obligatory.

Dr. OTTO SEIFERT, of Wuerzburg, reports that he had very good results in diphtheria from a solution of chinoline, 1.00; alcohol 50.0 and water 500.0; peppermint oil, two drops. The solution is used as a gargle, and the diphtheritic spots are painted with it. In all inflammations of the fauces the pains are stopped immediately by this solution.

THE Philosophical Society has opened its winter course of lectures, and a paper likely to interest medical men will be delivered January 20, at 8 P. M., by Dr. J. S. Jewell; subject, "Heredity, Mental and Physical." The society meets every Saturday evening at Apollo Hall, State street, corner Randolph.

THE Medical Society of Berlin energetically protests against the new sanitary institution called forth by Esmarch, of Kiel, and the Berlin physicians understand a good deal about this matter, as American surgeons understand somewhat of surgery.

L'Union Médicale, in reporting the first resection of the stomach in Italy, executed by Azzio Caselli, and which was followed by immediate death, calls the operation an "inutile traumatisme."

A HOMŒOPATHIC physician in Switzerland advertises that he performs "surgical operations *milder* than any physician of the other school." At last we know what a homœopathic surgeon is.

THE leaves of euphorbia pilulifera L., a plant growing in Queensland, are reported to be [illegible] r [illegible]sthma and other affections of the chest.

Selections.

A CASE OF SEVERE INJURY OF THE ORBIT.

By E. L. HOLMES, M.D., Attending Surgeon, and ROSWELL PARK, M.D., Assistant Surgeon to the Illinois Charitable Eye and Ear Infirmary.*

O. J., a boy fourteen years of age, was brought from Wisconsin to the dispensary of the infirmary, June 13, 1881, with the following history of an accident which happened eight months before.

A piece of pine wood, thrown with great force from a rapidly revolving circular saw, penetrated the left orbit, through the middle of the lower lid. The local surgeon succeeded in removing only a few splinters.

An examination revealed a small fistulous opening, surrounded with polypoid granulations, in the integument of the lower lid; also a similar growth at the lower portion of the cornea, with considerable redness and œdema of the lower part of the ocular conjunctiva. The contracted pupil and cloudiness of the cornea prevented a precise diagnosis of intra-ocular changes. There were slightly diminished tension of the globe, great loss of vision, with some tenderness and swelling of the side of the face, and impediment in the motion of the jaw.

It was difficult to determine, by probing, the direction in which the piece entered the orbit or from which the discharge came.

After the administration of ether, an incision was made along the border of the orbit, through the integument at the fistulous opening. The finger could then detect a piece of wood, firmly surrounded at its lower end by hard tissue. This piece extended upward between the conjunctiva and sclerotic, to the lower border

* Reprinted from the *Archives of Ophthalmology*, Vol xi, No. 1, March, 1882.

of the cornea. A careful examination seemed to demonstrate that the other portion of the stick extended into the antrum. And yet there was no history of discharge of blood or pus from the nostril. The free end, lying between the conjunctiva and sclerotic, was easily removed through the incision in the lid, but broke off close to the bone.

A careful examination with the tip of the finger disclosed a small piece of wood corresponding to the piece broken off, but held firmly by the products of inflammation. It seemed to extend directly downward. As an operation involving other tissues than those of the orbit appeared necessary, the case was placed under the charge of Dr. R. Park. No theory seems satisfactorily to explain how the piece behind the conjunctiva was at a right angle to the "stick" finally removed by Dr. Park.

SUBSEQUENT ACCOUNT BY DR. R. PARK.

It having been the unanimous opinion of all who first saw the case that a comparatively small sliver of wood probably extended into the antrum, I proceeded to try to effect its removal. Accordingly, the following day, having anæsthetized the boy again, I prolonged the incision made by Dr. Holmes toward the inner canthus, and then down the side of the nose. Reflecting the flap thus made, I perforated and entered the antrum. Prolonged exploration with the finger and probe failed to reveal the splinter. I again explored the orbit, and could grasp the piece with the forceps, but not tightly enough to remove it, nor could I convince myself as to its exact position, since the swelling from inflammation and the previous operation interfered [illegible] search.

In the meantime over an hour had [illegible] very vascular, the boy being [illegible] two consecutive operations [illegible] the anæsthetic badly, it was [illegible] measures. Accordingly, a [illegible] antrum; the incisions were [illegible] with dressings of cold water and [illegible]

The incisions healed well, although [illegible] from the tube. The boy's mother [illegible]

home to avoid expense, she was allowed to leave with him one week after the operation, with directions as to his care, and especially as to keeping me informed as to his condition.

Twice during September I heard that there was still discharge from the drainage tube, which had been allowed to remain.

Finally, after some further correspondence, he came to the city in November, or about five months after his first visit.

Status præsens.—The tube having been removed a month before, the lines of my incision are all healed, and with surprisingly little cicatrix. There are more or less swelling and induration of all the tissues of the temporo-facial region. The mouth can only be opened to extent of three-fourths of an inch; there is more tenderness over the left temporo-maxillary articulation than anywhere else. There is a sinus at the site of the original injury, through which a curved probe passes downward and backward more than an inch without touching diseased bone. There is a fistulous opening on the left side of the soft palate, close to the hard palate. There is discharge from both these openings. According to the mother, there has at several times during the summer, been a discharge from the left ear. There is now no visible opening or perforation of the membrana tympani through which it could have come. H. D., left ear=$\frac{15}{30}$; right ear,=$\frac{30}{30}$. Membrana tympani is slightly thickened; light spot irregular. There is coloboma above from simple atrophy of iris structure. This condition gives the pupil an oval slit shape. Media cloudy; details of fundus invisible. The patient counts fingers at six inches if held above the level of the eye. The globe is almost immovable in the orbit, held so by the products of inflammation.

Nov. 17, 1881.—With the assistance of Drs. Curtis, Tilley, and others, the boy being under the influence of chloroform (with one per cent. of amyl nitrite) I proceeded as follows: I first plugged the left posterior naris, and then laid up a flap of the cheek by a curved incision from the outer angle of the orbit to the angle of the mouth. Coming thus upon the site of the operation five months previous, I found the antrum pretty well filled with tissue. A probe could now be passed downward and through the fistula in the soft palate. The antrum, I then removed, with chisel, saw

and forceps, the inner half of the malar bone and almost all the floor af the orbit; taking care, as far as possible, to peel off the periosteum before attacking the bone. Probing and searching toward the nasal side of the orbit, I found nothing suspicious, and had begun to despair of finding anything to reward my efforts. I resolved, however, to work outward, and removing more of the malar bone and outer wall and floor of the orbit, I at last touched with the probe something which felt very much like wood. Clearing away the bone a little more, I caught with strong forceps and with some force extracted the foreign body. This was a piece of pine two and one-half inches long, and one-half inch square at its base. It had been lying with its anterior extremity engaged on a level below the infra-orbital ridge, and on the external surface of the orbit; its posterior extremity, judging from its length and now evident direction, was engaged just in front of the maxillary articulation. In its entrance and course it must, therefore, have penetrated the infero-exterior wall of the orbit; having been thus lodged with one end in the orbit, the other in the zygomatic fossa, and lying across the outer extremity of the spheno-maxillary fissure.

On further examination finding no other fragments, I curetted the fistulous tracks, and then united the edges of the flaps, after inserting a drainage tube. The progress of the wound was satisfactory in every particular.

On December 22, the patient returned to his home. His condition at that time was as follows: Line of incision entirely healed. No change in condition of parts within the globe. The eye is now freely movable, and its movements follow those of the other eye quite accurately, except upward. Its upward motion is interfered with by a condition of ectropion, combined with a band of granulation tissue, forming a species of symblepharon. The ectropion is caused by the cicatrix following the injury and the operations. At some time in the future a plastic operation may be made for its partial relief, but I would here to postpone this for a few months. The infra-orbital nerve entirely anæsthetic. Hearing distance, left ear

Obituary.

DR. OSCAR EUGENE WILSON was born at Chambersburg, Pike county, Illinois, March 24, 1858; died at Versailles, Brown county, Illinois, October 24, 1882, aged 24 years 7 months.

The subject of this notice in his boyhood manifested a very studious disposition, and at the early age of 17 began teaching school. He taught six terms of school, and in 1879 entered the *College of Physicians and Surgeons* at Keokuk, Iowa; graduated in medicine in 1881, and entered into practice with his father, Dr. B. Wilson.

In the practice of his profession he had already proven himself to be worthy of the confidence of the people; as a student he was unexcelled; as a citizen he was above reproach.

About the first of June, 1882, he was attacked with suppurative phlebitis, and was confined to the house for a few days. He then continued his practice until October 5th. At this time his condition became dangerous. His father called in medical assistants who did all for him that was possible to do; one or more physicians were with him all the time, day and night, but all to no purpose; he breathed his last, suddenly, about four o'clock, P. M., surrounded by the stricken family and friends and supported by his aged father.

In the death of Dr. Wilson the medical profession of Brown county has lost one of its most studious, energetic and temperate members, the Masonic fraternity one of their most worthy members; the village of Versailles one of its best citizens. His parents have lost a dutiful and worthy boy, and his brother and sisters a faithful counselor.

After religious services at the house, on Thursday, October 26, the Masonic order took charge of the body and conveyed it to the cemetery at Chambersburg, followed by more than a hundred carriages.

Thus a noble earthly life has ended; but we trust that he has new life above, where sickness and death can ...re the redeemed will ever enjoy the smiles

* * *

CLINICS.

MONDAY.

Eye and Ear Infirmary—2.15 p. m., Ophthalmological, by Prof. Hotz.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes: 3 to 4 p. m., Diseases of the Chest, by Prof. Ross.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m.. Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—2 p. m., Ophthalmological, by Dr. Hotz.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.
College of Physicians and Surgeons—2 p. m., Medical, by Prof. S. A. McWilliams; 3 p. m., Surgical, by Prof. R. L. Rea.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical

SATURDAY.

Rush Medical College—2 p. m.
Mercy Hospital—2 p. m.
Chicago Medical College—2
Woman's Medical
Stevenson.
College of Physicians
Chest, by Prof. S.
by Prof. A. Reeves

Daily Clinics, from 2 to 4
at the South Side Dispen

THE

CHICAGO MEDICAL

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Original Communications.

ARTICLE I.

MICROSCOPICAL INVESTIGATION INTO THE NATURE OF THE SO-CALLED BACILLUS TUBERCULOSIS. By H. D. SCHMIDT, M.D., Pathologist to the Charity Hospital of New Orleans. Read before the Orleans Parish Medical Society, Nov. 6, 1882.

Koch's discovery of the bacillus tuberculosis, published in the "*Berliner Klinische Wochenschrift*," April, 10, 1882, renewed the interest which I had previously felt in this subject, whilst engaged, during the fall and winter of 1881, in extensive microscopical investigations into the structure, the development, and degeneration of miliary tubercle. Though my faith in the theory of the *contagium vivum* had been considerably shaken by my former failure to detect minute parasitic organisms in the blood and tissues of fatal cases of yellow fever and leprosy, nevertheless this theory once more gained my confidence by the authorer of this new bacillus. But s
nts appeared to me rather suspi-
that the bacillus tuberculosis

differed from all other known bacilli, with the sole exception of the bacillus lepræ, in its behavior toward staining fluids. Still, not regarding this special behavior as impossible, I determined to regard the existence of this bacillus as a fact, unless convinced of the contrary by personal observations.

In order, therefore, to inquire into the existence and nature of this new bacillus, I went, at once, to work, and prepared, from the abundant pathological material constantly at my disposal, a number of specimens of sputa, and thin sections of tuberculous lungs, which sections I stained with the methyl-violet and vesuvin liquids, prepared with the greatest precision after Koch's directions, and then mounted them in Canada balsam. In examining both sputa and sections under the microscope, I failed, however, to detect anything in the shape of a bacillus, stained blue *to the degree which I expected.* Thinking that, perhaps, the brown color of the vesuvin might have hidden the bacilli, I now concluded to lay aside this color, and, accordingly, stained another set of sections and specimens of sputa, with methyl-violet alone, the surplus of which I removed by absolute alcohol and oil of cloves. Some of these preparations were then mounted in balsam, and the rest in glycerine. The microscopical examination, however, was attended by the same results as before, with the exception of one specimen of sputa, in which I observed a few minute, highly refractive rods of a greenish-blue tint, resembling in shape small bacilli.

Although I had thus far failed to demonstrate satisfactorily the bacillus tuberculosis, I still had faith in its existence, because I had learned from some medical journals that the minute, blue-stained rods had really been seen in London in some preparations which Koch himself had sent to that city; while, on the other hand, the want of success in staining the organism, experienced by some English microscopists at the Brownian Institute of the same city, consoled me for my own failure. But being still very anxious to behold this new parasite, especially in its original haunts, miliary tubercle, I resolved to have recourse to the old, long-tried bacteria detective, a solution of caustic potassa. With this solution, 30 per cent. in strength, I then succeeded in rendering visible, in a well

as in specimens of sputa, a number of minute rods, corresponding in form and size to those which Koch described as the bacilli tuberculosis. They were, as this investigator had stated, generally met with in small groups along the margins of the tubercles, exhibiting a greenish-blue tint, and being highly refractive. Notwithstanding that this high degree of refraction, exhibited by the bacilli, appeared to me extraordinary, I could not deny that, in other respects, the rods which I observed presented somewhat the form of these minute organisms, and this view became strengthened when I observed a minute granule on one end of one of the rods, which I imagined to represent the sporangium, also reported to have been discovered by Koch. And, having thus arrived at the point of admitting to myself that these bodies might represent true bacilli, I was ready to set aside my former views on this subject, and to pass over into the camp of the germ-theorists. This change of opinion, however, lasted but a short time, for a certain observation which I then made in the same direction, determined me to remain for awhile in the old quarters. I observed that these rods were almost always found in company with fat globules, and frequently, also, with granules of black pigment. This observation, of course, changed the face of the question, for it reminded me of the fatty crystals which I had observed, not only in the degenerating fat-cells of the subcutaneous layer of the skin in cases of leprosy, but also in the cells of other pathological tissues, as well as in vomited matter, and in fæces. In fact, every working pathologist knows that the crystals of fatty acids, either free or enclosed in cells, are not infrequently encountered in the examination of pathological specimens.

In returning, therefore, to the section of tuberculous lung-tissue under discussion, it remains to be stated, that at the time when I first beheld the groups of minute rods, the protoplasm of the tubercle-cells in the section had already been considerably acted upon by the solution of potassa, and thus been rendered very clear. In examining the next section, likewise treated with the solution of potassa, I endeavored to find the rods, before this fluid should have rendered the histological elements of the lung-tissue indistinct; and while thus examining along the margins of the tubercles in the section, I noticed a number of cells of an

opaque and somewhat blackish appearance, and in keeping my attention directed to these cells, I observed how their protoplasm cleared up more and more, and, finally, that they were filled with larger and smaller fat-globules, between which the minute rods gradually made their appearance (fig. 1). With the clearing up of the protoplasm, the latter were rendered sufficiently distinct to bear a close examination. In this section the cells, which were almost all filled with fat-globules, and many of them with pigment-granules beside, chanced to contain numerous rods, which, however, considerably differed among themselves, both in length and form. While some of them represented true rods, with slightly pointed, or even square ends, others presented the form of fine needles, with their ends terminating in fine and very slender points; and others, again, presented the form of a lancet. All these minute bodies, however, were characterized by very sharp and dark contours, and by refracting the light very highly. Like fat-globules, they concentrated the light passing through them when brought out of focus by removing the objective further off, while they were rendered dark by a closer approach of the latter.

These examinations were then repeated on a great number of other sections, which I had specially made for these investigations from the lungs of four cases of tuberculosis, including two of miliary tubercle. But, in every section which I examined, I met with the same results as above stated. In a number of specimens of sputa, also treated with the solution of potassa, the minute rods were now easily detected, [illegible] free, or still enclosed in the fattily degenerated [illegible] pigmented cells.

The suspicion, however, [illegible] might after all, only represent minute fat-cr[illegible] mind, and was much increased [illegible] From my microscopica[illegible] several patients dead of [illegible] the summer at the Charit[illegible] thin sections for subsequ[illegible] tion of minute parasitic or[illegible] at the same time when I ma[illegible] on the sections of tuberculou[illegible]

same solution of caustic potassa, for the purpose of detecting bacteria, some sections of yellow fever liver, kidney, and heart, which, as I knew from previous examinations, were considerably affected with fatty infiltration or degeneration. But failing to discover any bacteria in these sections, I put them aside, mounted as they were. The next morning, however, when I chanced to re-examine them under the microscope, I was surprised to find them covered with crystals of fatty acids, which had formed since the preceding day. The crystals themselves, as well as their arrangement into figures, appeared to differ in the different tissues represented in these sections: for, while in one section they appeared in the form of a regular cluster of needles, radiating from a common center, they presented themselves in the other in the form of branches springing from a delicate stem, or even in small groups, arranged in an irregular manner. The greater number of these crystals resembled those of margaric acid; they were sword-shaped, and were marked by very delicate outlines: others appeared in the form of minute needles, or lancet-shaped leaflets, with very dark and heavy contours, forming ramifications like the branches of a tree; these, very likely, represented stearic or some other fatty acid. At any rate, some of the individual minute crystals, especially those at the root, where the little branch arose from the patch of fat, were identical in form with the minute rods, needles and leaflets contained in the tubercle cells. In the sputa of tuberculous patients, treated with the same potash solution, the same crystals above described were also observed to form (fig. 8). Subsequent investigations into this subject showed me, furthermore, that these crystals may be produced in any tissue which has undergone fatty degeneration, such as cancer, etc.; and even with an alkaline solution much weaker than the one which I had used. If a film of tallow, produced by rubbing the glass slide gently with a small piece of tallow candle, is treated with caustic potassa, minute lancet-shaped crystals will appear in a time as short as half an hour.

The artificial production of pseudo-bacilli tuberculosis in the minute fat-crystals, which I had learned by this observation, did not but strengthen the suspicion with which I had regarded the minute rods and leaflets contained in the

tubercle cells, and therefore, all that now remained to be done was to prove, in a more reliable and positive manner, that these bodies also represented the crystals of a fatty acid. Accordingly, I selected several sections, cut from the tuberculous portion of a lung which I knew, from previous examination, to contain considerable numbers of the degenerated cells in question. These sections, in order to be sure of their really containing these cells with rods, were treated with the potassa solution, and then put under very thin cover-glasses, upon glass slides, for examination. Having thus assured myself of the presence of numerous rods and leaflets in the cells of these sections, I placed the slides, upon which the latter were mounted, under water contained in glass saucers, for the purpose of making the cover-glasses float away from the sections. As the latter, by the action of the alkaline solution, were rendered quite soft, the manipulation had to be executed with great care. Nevertheless, I fully succeeded in removing the delicate sections from the slides into the water. From this, they were, by the aid of a small camel's hair brush, carefully transferred to alcohol, and from this to ether, contained in a small test-tube. After the ether had been heated to its boiling point, for the purpose of dissolving, if possible, the minute rods in the sections, the latter were transferred again to the alcohol, and from this to the water, to be finally remounted upon the slides in a weak solution of potassa, or in a medium representing a mixture of alcohol, water and glycerine. Upon close re-examination of these sections, under the microscope, it was found *that every minute rod and lancet-shaped leaflet which they had before contained, had now disappeared;* in other words, *they had been dissolved by the ether.* The results of this experiment speak for themselves, for they conclusively show that my suspicions respecting these minute rods and leaflets, *that they represented the crystals of a fatty acid*, were well founded. True bacilli, as everybody knows, will never dissolve in ether; on the contrary, their protoplasm will only be rendered more consistent by the action of alcohol and ether. I obtained the same results with other sections, which I subjected to the same process, with the modification that [illegible] I left them in cold ether for several

Having thus become familiar with the characteristic appearance of these minute crystalline rods and leaflets, and, moreover, knowing now the particular localities in the sections where to find them, I proceeded to re-examine those sections which, stained by Koch's method, I had mounted in Canada balsam. These re-examinations ended in the discovery of a number of minute, faintly blue rods, identical with those observed in the sections treated with the solution of potassa. In these sections, however, the pseudo-bacilli appeared less numerous, for the reason that the majority of them remained hidden in the protoplasm of the cells, rendered brown by the vesuvin, and therefore, only those rods which happened to be outside of the protoplasm, or in very thin and light portions of the section, could be seen; the great transparency of the Canada balsam, also, prevented them from being brought into view. But the principal reason for the failures in detecting the imaginary bacilli during my first examination of these stained sections was, that I had expected to find them stained, *like true bacilli, or micrococci, of a bright blue*, while, in reality, *they are not stained at all*, but simply present their natural bluish tint.

While I was thus engaged in these investigations, I learned, through some medical journals, of the improved staining methods of *Ehrlich* and *Gibbes*, and took steps to procure from New York some aniline oil and chrysoidin, which could not be obtained in this city. As soon, therefore, as these substances came to my hands, I prepared, in accordance with the given directions, and with the greatest precision, the liquids required for these methods, and proceeded to put them to test. And, in strict accordance with the prescriptions for these two new methods of staining, a number of sections of tuberculous tissue, and specimens of tuberculous sputa, were stained, and then mounted in Canada balsam. But, as was the case with the preparations stained by Koch's method, the examinations of these specimens led to the same results. The pseudo-bacilli remained unstained, presenting only, as before, their natural bluish tint.

s new failure experienced in the attempts at staining
bacillus tuberculosis by the improved methods of
, which, on account of the aniline oil contained

in the staining fluids, were represented as much superior to Koch's original method, I concluded to inquire a little closer into the nature of these fluids, and accordingly, examined under the microscope a drop of Ehrlich's solution. The examination revealed the fact that this fluid contained an indefinite number of minute globules of the aniline oil, colored blue by the methyl-violet; a circumstance which at once exposed the erroneous idea of the specific action of this oil in the staining of these bacilli. This substance, representing the basis of the aniline colors, was supposed to prepare the bacilli for the reception of these colors. The results which I obtained from the microscopical examination show that, though a certain quantity of the oil may be absorbed by the water, another, and perhaps a larger portion remains—notwithstanding the close filtering—suspended in the fluid in the form of minute globules, which, in reality, are the true carriers of the color. Now, it is hardly possible that these colored oil-globules are absorbed by the minute crystalline rods, leaflets and needles. The examination of Gibbes' staining fluid, in which the aniline oil is dissolved by alcohol instead of water, gave the same results.

But again, in both of these methods, the specimens, after being stained, are treated by a solution of nitric acid, until, according to the directions given, the color absorbed has nearly disappeared, when the action of the acid is arrested by washing in water. In order to see how much was left of the color in the sections, I selected a number of them, treated to a greator or lesser extent by the acid solution, and mounted them in different media, such as water, glycerine and Canada balsam, for microscopical examination. The latter showed that the color which had remained behind was not fixed in the pseudo-bacilli, but mainly in the nuclei, and also protoplasm of some of the cells. The results of this examination, therefore, showed that the advantage gained by treating the specimens with the solution of nitric acid is, like that of the aniline oil, but imaginary; and furthermore, that the specimens, after being stained, might as well be treated at once with the vesuvin, or chrysoidin, as Koch originally did. In fact, the method of staining which Koch originally employed is, if not better, at least fully as good, as those of Ehrlich and Gibbes.

In the staining of the bacillus lepræ, stress has been laid upon

treating the leprous tissue, previous to the staining, with an alkaline solution, particularly of caustic potassa. The pretended purpose of this alkaline treatment is to dissolve the outer layer of these bacilli, supposed to consist of cellulose, and to facilitate, by the destruction of this layer, the absorption of the aniline colors by these organisms. This supposition must appear unfounded to any one familiar with the staining of vegetable tissues, as vegetable cells, the most of which possess an outer cellulose coat, absorb very readily aniline colors, especially methyl-violet, without being subjected to the action of an alkali. Koch also attaches the greatest importance to the presence of an alkali in the staining fluid for his bacillus tuberculosis, but omits to state the object in view. He, however, says distinctly, "that by increasing the strength of the potassa solution, the bacteria may still be stained in places, where with a weaker solution of this alkali they refuse to make their appearance."* Now, by referring to the description which I have given above of the process by which the minute rods, or pseudo-bacilli, are rendered visible, every thinking physician will at once guess the part which the solution of caustic potassa plays in the demonstration of these bodies. This part simply consists in rendering the protoplasm of those degenerated cells, containing the rods, softer, and clearer to the passage of light, by which the rods are finally brought into view. In the methods of Ehrlich and Gibbes, the same part is played by the aniline oil.

Besides the stained sections already mentioned, I have, in the course of these investigations, stained many others, either by the methods of Koch, Ehrlich and Gibbes, or by modifying them to a certain extent; and I have thus ascertained, as I previously expected, that the successful staining of the pretended bacilli does not depend upon a given strength of the staining fluid. Every body knows that in the staining of animal and vegetable tissues, a weak solution of the staining material stains as thoroughly, or even more so, than a stronger one, provided the tissues are left in it a sufficient length of time. The weaker the solution, therefore, the more time is required by the tissues to absorb the color, *vice versa*. The staining of Koch's bacillus tuberculosis

*schenschrift," April 10, 1882, p. 222.

takes place under the same conditions. Neither is it essential, as in Koch's method of staining, that the alkali should be incorporated in the staining fluid; on the contrary, if the sections are first exposed to the action of a one per cent. solution of caustic potassa — which is about equivalent to the alkalinity of Koch's staining fluid—for twenty-four hours, and subsequently to the simple solution of methyl-violet, they will absorb the color just as well, and more rapidly, with the same final results. As long as the alkali fulfills its mission of softening the protoplasm of the cells for the ready absorption of the coloring material, it matters not whether the staining be accomplished in a shorter or longer time; though I think that the tissues are stained more evenly and thoroughly by leaving them for a longer time in a weaker solution of the staining material.

In connection with the foregoing, I will mention an observation, which I made on some sections of tuberculous lung, soaked in pure aniline oil, before they were put in the solution of methyl-violet, and which, after being stained by the latter, were treated with the solution of nitric acid until rendered green, and then mounted in glycerine. The microscopical examination of these sections showed nothing particular. But, when re examining them on the next day, I found them covered with a great number of larger and smaller brown fatty globules, from the periphery of which projected a number—from one to four or five, of long needle-shaped crystals; the thickness of the needles was proportionate to the size of the globules, some of which were very minute. Beside these needles arising from the fat-globules, however, there were a number of others, more minute and slender, and without globules, but lying free in the field, either single or in small groups; they differed in length, some terminating in very fine and slender points, while others appeared in the form of minute rods. I of course perceived at once that these globules in the section represented aniline oil in the act of crystallization, which was probably induced by the conjoined influence of the nitric acid and the tissues. Next, I put a drop of Ehrlich's solution upon a glass slide, and after somewhat flattening it, put into its center a minute portion of the nitric acid solution, which at once rendered this [illegible] green; then a

cover-glass was applied to the preparation, and the slide put aside. When the preparation was examined on the next day, minute needle or rod-shaped crystals were observed. These facts show that minute crystals of various forms may be artificially produced in animal tissues with great facility.

At this period of my investigations, as may be judged from the above statements, I was convinced of the crystalline nature of the minute rods which I had observed in the sections of tuberculous lung; and accordingly, I might have published the results which I had obtained about three months ago. But, even at the risk of losing my claims to the priority of these observations, I preferred to extend the investigations to a still greater number of cases, in order to substantiate the facts which I had elicited. Therefore, the investigations were repeated on eight additional cases of tuberculosis of the lungs, of which I made hundreds of sections, which, together with numerous specimens of sputa, were carefully prepared and studied in the various manners already described. Thus the experience I gained on the subject is now based upon the careful examination of several hundreds of sections from tuberculous lungs, and specimens of tuberculous sputa. Beside these preparations, however, I examined a great number of sections already stained with picro-carmine and hematoxylin, which I had kept in good condition in alcohol and water from my previous studies on the structure of the miliary tubercle during last winter. These sections proved, notwithstanding their being stained, to be as useful for the study of the subject as those freshly made.

Having stated, in the preceding pages, the principal facts elicited by my investigations into the nature of the so-called bacilli tuberculosis, I shall now proceed to describe and discuss in detail some of their more salient points, commencing with the minute crystalline rods, leaflets and needles, somewhat resembling in form, when superficially examined, the bacilli.

As I have mentioned once before, these bodies (figs. 1, 2 and 3) differ among themselves, both in form and size, and are dis-

y refracting the light in a much higher degree than

'When, therefore, a very thin section containing a

ds is examined under the microscope, with the

aid of a first-class achromatic condenser, it will be found that those rods which lie at the surface of the section appear, *like other crystalline bodies*, very bright and shining, as soon as they are illuminated by very oblique rays of light proceeding from two different directions—obtained by making use of the eccentric orifices in the diaphram of the condenser—while, at the same time, all the other elements of the section appear but feebly illuminated. Although the different forms of these bodies may already be recognized without difficulty in the sections cleared up by the solution of potassa, they are still better seen by allowing the potassa to act for a longer time upon the histological elements of the section, until these are nearly destroyed with the exception of the elastic tissue framework of the alveoli. Then, by passing a small current of water between the slide and the cover-glass by means of a small piece of blotting-paper, the disintegrated protoplasm is washed away, and the minute crystals are properly exposed for examination (fig. 2). In such preparations, the fine, slender points of the needle or sword-shaped crystals, which before were buried in the protoplasm, are now fully exposed to view. A number of these pseudo-bacilli will present themselves in the form of shorter or longer ellipsoid or lancet-shaped bodies, while others will appear in the form of longer or shorter rods. The ends of many of the latter are distinctly rectangular, while in others they are slightly pointed. There are, however, a number of these rod-like crystals, particularly the shorter ones, which only exhibit their lateral outlines, in the form of two dark parallel contours, while the outlines of their rectangular ends can hardly be seen (figs. 1, 2 and 7). In these rods, the ends probably terminate in sharp edges, or are buried in the remains of the disintegrated mass of protoplasm.

The crystalline pseudo-bacilli are almost always found in company with a larger or smaller number of fat-globules, together with black pigment-granules, either single, or collected into small masses. Sometimes small groups of crystals are met with only associated with pigment, or, if fat be present, it is in the form of a few minute globules; but not unfrequently, also, single or small groups of crystals are found only accompanied by a small group of pigment granules (figs. 1 and 2). In fact, the association of

these minute crystals with fat or pigment is so characteristic, that in order to find the former in the sections, it is only necessary to look for the groups formed by the latter; for it is very rare to find even a single one of these minute crystals without some pigment-granules in its vicinity. In sections mounted in oil of cloves or Canada balsam, the fat disappears from view, in consequence of the transparency of these media, while the pigment-granules, on account of their dark contours, are rendered more distinct. The centers of these granules, when brought into the proper focus, present the same bluish tint as characterizes the pseudo-bacilli. And, as far as I may judge from my observations, there remains no doubt that the fat-globules, crystals, and pigment-granules stand in a very close relation to each other. This supposition is not only supported by the fact that these elements are almost always found associated together in groups, but moreover, by other forms observed, which are transitory between these fat-globules, crystals, and pigment-granules. Thus, in closely examining many of the collections of black pigment deposited along the margins of the miliary tubercles, or even along the blood-vessels in the alveolar septa, small collections of fat, not in the regular form of globules, but in that of triangular, quadrilateral, elongated, or otherwise irregular patches of a dirty greenish, or even blackish appearance, are frequently met with; sometimes one portion of such a patch has already assumed a blackish color, while the rest still exhibits its greenish tint. In company with these patches, small plates of a triangular, quadrilateral, or rhomboidal form, or even minute rods, as well as large elongated pigment-granules, are often seen; they all show their crystalline nature by their heavy, dark contours, and their high degree of refraction (figs. 2 and 7). These elements, both fat-globules and crystalline plates, are not alone met with in tuberculous lungs, but also among the masses of black pigment in the alveolar septa of healthy ones. In the sections which I made from the healthy lung of a syphilitic woman, for instance, I thus observed not only a number of these elements, but also some minute crystalline rods. In examining closely the fat contained in the cells of any tissue affected by fatty infiltration or degeneration, it will be found that it does not always appear in the form of globules, but also in that of

small oblong or even rod-like patches; this is especially the case in such portions of the organ, or neoplasm, where the circulation, and in consequence, the nutrition, have been interrupted for some time by the obliteration of the minute blood-vessels. Under such conditions an inspissation of the fat deposited in the cells takes place, which finally leads to the crystallization. This condition particularly occurs in tuberculous and leprous tissues. In miliary tubercle, as we know, the minute blood-vessels of the alveoli are obliterated at an early date of the pathological process by the proliferation of the tubercle-cells, which, for the want of nutrition, soon undergo fatty degeneration; they, moreover, by the continuous growth of the tubercle, become farther and farther removed from the supply of nutritive matters, as well as from the influence of the healthy tissues. It is under these circumstances that an inspissation of the fat which these cells contain, takes place, leading, finally, to the formation of the minute crystals; and, as the center of the tubercle is most remote from the healthy tissues, we would naturally expect the first crystals to be found in this place. But this appears not to be the case, for though not infrequently the crystalline rods, either single or in small groups, are met with in the center, and throughout the cheesy part of the tubercle, it nevertheless happens that they are found in much greater numbers along its margin. Though a reasonable explanation for this apparently contradictory phenomenon may be given, I must forbear at present from doing so, as it would lead me too far away from the main subject, and increase the length of this article. I therefore postpone the explanation of this phenomenon to some other occasion, and confine my remarks to stating, that I have also found comparatively large crystalline masses, or large groups of single rods and leaflets, in the indurated portions of tuberculous lung; they were unaccompanied by fat-globules, but always found in the vicinity of collections of pigment granules (fig. 6). These masses, when examined with oblique illumination, always resolve into an aggregation of minute rods, or needles. The same form of fatty crystals may be artificially produced, by means of the potash solution, in the sputa of tuberculous patients, or in any fattily infiltrated or degenerated tissue.

But the finest display of the minute crystalline rods, leaflets and needles I observed in the sections of a group of bronchial lymphatic glands, from a case of peri-bronchitis fibrosa. These glands, as is sufficiently known, contain a great deal of black pigment. The sections in question I had made and stained during last winter, and they had since been kept in a mixture of alcohol and water, but nevertheless showed their structure as neatly as if they had been cut the day before the examination. The microscopical examination of these sections, made after they had been treated with the potassa solution, revealed all the forms of the minute crystals above described; they were found throughout the tissue of the gland, but particularly in the vicinity of the abundant collections of black pigment, and between the groups of granules of the latter, all the transitory fatty and crystalline forms to which I have referred above, could here be thoroughly studied. After the section had been exposed to the action of the potassa solution for several hours, it was washed by a small current of water made to pass through it under the cover-glass; by this process the crystals were fully exposed to view, and appeared as they are represented in fig. 7. The most interesting part of the observations made on these sections, however, relates to the fat-cells met with in the areolar connective tissue which binds together the individual lymphatic glands of the group; a considerable number of which—at least one dozen in each section—were found to be completely filled with the minute rod or sword-like crystals of margaric acid. While in some of these cells all the crystals radiated from one common center, in others they radiated from the center of several large fat-globules contained within (fig. 3). In a number of instances the membranes of the cells had been opened by the knife, allowing a portion of the crystals contained within to escape and to present themselves to full view. Some of these sections were after the examination, subjected to the action of boiling ether, in the manner above described in connection with the sections of tuberculous lung, and when they were re-examined, it was found that *every crystal had disappeared*, and nothing but the empty cell-membranes were left (fig. 4). As in the sections of tuberculous tissue, the ether had dissolved the crystals.

Although the fattily degenerated cells are always met with in the tuberculous portion of a lung, they do not always contain pseudo-bacilli; it may happen, even, that while great numbers of these crystals are found in the sections made from a certain piece of tuberculous lung, none will be met with in other sections made from a neighboring piece of the same lung. In the sections made from different parts of the lungs of a case of disseminated miliary tubercle of eight months' standing, a boy fifteen years of age, I met with very few crystalline rods, though very numerous cells filled with fat-globules were present. The crystals here, together with the transitory forms which I have mentioned above, were chiefly found in company with groups of pigment-granules; this case, therefore, offered a favorable opportunity for the study of these transitory forms. There were numerous cavities, mostly small in size, and filled with a thin, glairy fluid found in the lungs of this case. In examining the fluid, a few hours after death, it was found that its viscidity was chiefly due to the presence of myriads of sphero-bacteria, and also small pus-corpuscles. The bacteria were clustered into innumerable minute balls, and many of them still in motion. In some of the sections, made from the border of a cavity, I observed quite a number of capillary vessels filled with numerous bacteria termo, which undoubtedly came from the cavity. But, as these organisms were obviously derived from the inspired air, there can be no significance attached to their presence.

The degenerated cells containing the pseudo-bacilli are, as before mentioned, not infrequently met with in the sputa of phthisical patients. I have, as yet, not had sufficient time to positively determine the exact route by which they get into the expectoration; for, though I have, in a few instances, met with some of them in apparently healthy alveoli, I do not think that they originated in these places. But, as they are frequently found in the close vicinity of minute cavities, and but rarely near the borders of a large cavern, we may presume that they are set free in the beginning of the breaking down of the tuberculous mass, when they may escape through a small [illegible] and again by the ulceration of the tubercle. The [illegible] cells, containing a small [illegible]

or pseudo-bacilli, are also frequently met with in the expectoration. At any rate, the presence of these cells, either with or without the crystalline rods, or of single free rod-like crystals, always indicates the presence of minute tuberculous cavities in the lungs.

With regard to the mode of preparing the specimens of sputa, I may add, that they are simply spread as thinly and evenly as possible upon a glass slide, and left to dry; then one or two drops of the potash solution are put upon them, and the cover-glass applied. The particular strength of the solution is of little importance, for the stronger the solution the quicker the action, and *vice versa*. The same with the sections, which may before being mounted, be first exposed to the action of the solution, contained in a small porcelain capsule, or in a deep watch-glass. The time of exposure is about fifteen minutes for a 30 per cent., one hour for a 10 per cent., and twenty-four hours for a 1 per cent. solution. From the solution they are transferred to pure water, and from this, by means of a small spatula, to the slide. There the water is removed from the section by means of a moist camel's-hair brush, after which two or three drops of the potash solution are put upon it, and the cover-glass applied.

While I was pursuing the investigations described in the preceding pages, I often asked myself, whether the pseudo-bacilli which I observed were really identical with Koch's bacilli tuberculosis, or whether there existed some *true* bacilli, besides, in the tuberculous portions of lungs, which I had failed to discover. For I could hardly conceive the idea that one holding so prominent a position in the medical world as Dr. Koch, could commit the error of mistaking minute crystals of fatty acids for organized beings. But, as he has not mentioned in his treatise these crystals, which in so many points correspond to the description he has given of his bacillus tuberculosis, I must presume either that they have escaped his notice, or *that they are identical with the bacilli he described*.

I have already remarked, that the natural bluish color, which these minute crystals exhibit, may be taken for true staining with methyl-violet; and I have also stated that if sections of tubercu-

pseudo-bacilli, are, after treatment with

the solution of caustic potassa, stained *only* with vesuvin, and then mounted in Canada balsam, *these bodies will show the same blue tint as if the sections had previously been stained with methyl-violet.* My suspicions that Koch's bacilli had never been stained, were considerably strengthened when I read the remarks made some time ago by the Berlin correspondent of the Philadelphia *Medical News*, who, though apparently a tyro in scientific microscopical matters, is an enthusiastic admirer of the bacillus tuberculosis. This gentleman, in describing the method of preparing the specimen for the demonstration of the bacilli tuberculosis, says:* "The specimen may be conserved in the usual way with Canada balsam, but it is important to know that *the color fades out in about two months.* It may be restored, of course, by beginning *de novo*, after careful recovery of the specimen from its bed of balsam with turpentine in the usual way.

"Some one asked Dr. Koch, the other day, why he did not prepare and sell the specimens, and thus realize a small fortune. He would consider such a work unworthy the dignity of a science, he said, but even if he had not been restrained by any such feelings, he would have rendered himself liable to the charge of imposture, he added, with a smile, after the color of the specimens had faded out."

Here we have, then, Koch's own statement that his bacilli tuberculosis part with the color which they are said to absorb by the staining process. Now, true bacilli never part with the methyl-violet, having once absorbed it, but, like micrococci, or other vegetable tissues, retain it for years. This I know from experience. And often have I convinced myself of the greediness with which bacilli absorb methyl-violet, by simply stepping from my office to the street gutter, and procuring a portion of the rainbow-colored film which rests, almost throughout the whole year, upon the surface of the standing gutter-water. This film, when examined under the microscope, is found to be crowded with minute organisms, such as infusoria, algæ, and the whole list of schizomycetes, from the sphero-bacteria up to the spirochæta. When a small portion of this film is mixed with a weak solution of

* The Medical News, August 14, 1886, p. 170.

methyl-violet, and about ten minutes afterward examined under the microscope, it will be found that all the bacteria, among which is the bacillus subtilis, as well as the infusoria, are now colored purplish-blue, and that in proportion to the length of time during which they are exposed to the color the latter increases in intensity. A refusal of true bacilli to absorb fine coloring matters, such as methyl-violet, could only be explained by supposing them to possess, like diatomaceæ, a silicious coating. To assert, however, that the bacillus lepræ and bacillus tuberculosis do so differ from other bacilli as to possess such a coating, would require a very considerable stretch of the imagination.

Another instance of the early disappearance of the bacillus tuberculosis from the preparations, was communicated to me a few days ago in the following way: Some weeks since I learned, through one of our medical journals, that a certain prominent American physician had just returned from Germany, and brought with him several preparations of the bacillus tuberculosis from Koch's laboratory, which, at his arrival, he had exhibited to some medical society. Being very anxious to examine some of these specimens, for the purpose of comparing Koch's genuine bacillus tuberculosis with my crystalline pseudo-bacillus, I addressed a letter to this gentleman, in which I requested him to afford me this opportunity by lending me one of his specimens for a few days. My request was kindly granted. But, while I was anxiously looking for the arrival of the specimen, the doctor informed me by a second letter, "that all his specimens from Koch's laboratory had lost color, and hence the bacilli were invisible."

They had become invisible, because they had never been stained, though their natural bluish tint, with their contours, may have been distinguishable when the specimen was first mounted.

But let us try to find an explanation for this early disappearance of these crystalline rods from the balsam mounting. I have already alluded to the intermediate forms observed between the simple fat-globules and the crystals, or even the pigment, which

lline in nature. Now, in examining, especially, the

a little closer, it will be found, that though they

high degree, their contours differ in the

different rods in sharpness, heaviness and darkness; for, while some of the rods are darkly and heavily contoured, the borders of others are marked by finer lines; the latter, also, present a brighter, more greenish tint. Now, it may be presumed, that this difference existing in the contour, indicates a difference in the degree of crystallization of the rods; the darker and more pronounced the contours the higher is the degree of crystallization, and at the same time, the greater the power of resisting solving agents. Accordingly I observed, during the re-examination of those sections of tuberculous lung which were boiled in ether, as described before, that, though the rods, in general, had disappeared, a few single ones—perhaps one or two in a hundred—exhibiting very dark and heavy contours, were here and there met with, having resisted the solving power of the ether. They might, perhaps, have finally dissolved, if the boiling in ether had been continued for a longer time. The early disappearance of Koch's bacilli in the balsam mounting may take place under similar circumstances, namely, they may be acted upon by the solving power of the benzol, which keeps the balsam in solution; though the increasing transparency of the balsam may also play a part in the phenomenon.

After the perusal of the facts brought forward in the preceding pages, the reader may, perhaps, ask: If this bacillus tuberculosis represents the minute crystal of a fatty acid, whence, then, came the bacilli which Koch obtained by cultivation from the sputa of phthisical patients, as well as from the tuberculous matter of the lungs? This question I can only answer by replying, that I attach no signification whatever to the presence of bacilli, or other minute organisms in the expectoration of tuberculous patients, because the germs of these organisms have, with each inspiration, ready access to the cavities of the lungs. It is a common occurrence to meet with micrococci, even, in the sputa of non-tuberculous patients, but more frequently still in that of phthisical patients. In some specimens of tuberculous sputa, I have even observed numerous bacilli subtilis, which, as I have stated before, are constantly found in our street gutters. Therefore, the assertion of any minute organism being the cause of tuberculosis is invalid, as long as this organism is not met with

in the blood, or in the tuberculous portions of the lung, and in such numbers as will render its noxious influence evident. As regards the bacilli which Koch raised from tuberculous matter, I can only say, that I always regarded with suspicion the organisms obtained by culture from pathological tissues or secretions, for the obvious reason, that their germs appear to be omnipresent, and the experimenter hardly knows himself the origin of all the bacteria which he finds in his culture-cell, or upon his culture-substance. The same remarks may be applied to the results of the inoculation experiments made on various animals, for the statements of the results of quite a number of experimenters, recorded in the literature on this subject, are so contradictory as to render it difficult to decide what is true and genuine.

Although there remains much more to be said on the subject of tuberculosis being caused by minute organisms, I must postpone all further remarks to some other, more opportune time, when I shall be more at leisure to continue the discussion on this interesting subject.

In connection with the bacillus tuberculosis I have a few remarks to make on its near kin, the *bacillus leprœ*. To find this bacillus I set about, nearly a year ago, and stained very thoroughly a number of sections of various leprous organs with methyl-violet. In examining these, mounted in Canada balsam, however, I failed to discover anything resembling a bacillus. Thinking it strange that I should have failed to see this bacillus, which from the statements of other observers, ought to have been present in these sections, I wrote a paper entitled: "Is the Bacillus Lepræ a Reality or a Fiction?" in which, beside reviewing the statements of other observers, I stated the results of my own examinations, and the method of staining I had employed. The paper was published in the CHICAGO MEDICAL JOURNAL AND EXAMINER, April, 1882. Two months afterward, a paper entitled "The Bacillus Lepræ," by Dr. I. Bermann, of Baltimore, appeared in the *Archives of Medicine*, in which the author winds up the subject as follows: "In the April number of the CHICAGO MEDICAL JOURNAL AND EXAMINER, Dr. H. D. Schmidt, of New Orleans, discusses the question whether the bacillus lepræ is a reality or a fiction. That he has not succeeded in

finding them in his specimens I cannot doubt, since it was testified that they could not be seen in them by microscopists in Chicago. I am satisfied that some fault in his method is alone the cause of his non-success, and I should be very glad to stain some of his material if he will send to me, and believe that I could convince him in this way of the unfictional character of the bacillus lepræ."

Now, notwithstanding that I have made double and triple stainings of thousands of sections, both of animal and vegetable tissue, and accordingly gained some experience in the various methods of staining, I am still ready to learn from others, even from my own pupils; and therefore, soon after reading the above remarks of Dr. Bermann, I complied with his request, and sent him a number of my leprous sections made from different organs of different cases, so that he might try his skill in staining the bacilli, which these tissues are said to contain. Some weeks after this, he informed me by letter that he had succeeded in staining the bacilli beautifully, but that in all of them the color had disappeared after three or four days, a circumstance which he attributed to the presence of the picric acid in the picro-carmine with which the sections had been stained, and that for this reason, he would try again to stain the bacilli by previously treating the sections with a strong alkali. At the same time, in order to convince me of the existence of the bacillus lepræ, he offered to send me a preparation of his own, still living, case. This was the last which I heard from Dr. Bermann. Even a letter addressed to him five weeks ago, in which I expressed the desire of beholding the bacillus lepræ, and furthermore, reminded him of his promise to send me one of his own preparations, remained unanswered. I must therefore, presume that the bacilli lepræ in his own preparations have disappeared from view in the same manner as the bacilli [illegible] Koch, for the reason that they never had been [illegible] that this supposition is based upon facts [illegible]

After I had discov[illegible] in the tuberculous lunge[illegible] of leprous tissues from [illegible] tion of caustic potass[illegible]

same highly refractive rod, lancet, and needle-shaped crystalline bodies, exhibiting the same blue tint as the former. As in the lungs, they were always found associated with fat-globules, and in many instances, even, seen to arise from them in the same manner as is observed in the crystals artificially produced by the action of caustic potassa upon tuberculous sputa (fig. 9, *b*). As in the case of the pseudo-bacilli tuberculosis, the same transitory forms, intermediate between the fat-globules and the crystals, and indicating the different degrees of crystallization, were here met with. Among these forms, a number of minute knotted or varicose rods, which evidently showed that they had been formed from a few very minute fat-globules fused into each other (fig. 9, *a*), were also observed. In the sections of leprous livers, also, many opaque-looking cells, containing a considerable number of these crystalline bodies in company with fat-globules were observed, though in many other places in the sections, single rod or lancet-shaped crystals, or groups, formed by two or three of them, associated with fat-globules, were likewise met with.

In order to make sure of the crystalline nature of these bodies, I treated a number of sections of liver, lymphatic glands, skin, etc., from different cases, with the potash solution; and after having convinced myself by microscopical examination that they contained the crystalline bodies, they were boiled in ether, in the manner described in connection with the sections of tuberculous lung. By re-examining these sections under the microscope, it was found that *every crystal had disappeared from view.*

In my paper on the bacillus lepræ, mentioned above, I stated that in my former studies of leprous tissues, I had met with a number of degenerated neoplastic cells (originally derived from the nuclei of the fat-cells lodged in the reticulated portion of the corium and the subcutaneous layer of the skin) filled with minute crystals of margaric acid; and furthermore, remarked that in sections not stained with hematoxylin or methyl-violet, these crystals, though easily recognized, might nevertheless be taken for bacilli. Rather thinking, at that time, that those small, very
net with in the corium of the skin, were taken for
ained that the remarks I made in regard to the
so near the truth. And now, after having

more thoroughly investigated this subject, I can hardly understand how these minute rod, lancet, and needle-shaped crystals could ever have been taken for true bacilli, characterized by their blunt, almost square extremities.

EXPLANATION OF THE ILLUSTRATIONS.

Fig. 1 represents a small portion of the margin of a tubercle. The section has been treated with the solution of potassa, which has rendered the tubercle-cells pale and indistinct. A number of fattily degenerated, opaque cells, containing the fatty acid crystals with fat-globules, are seen in two of the alveoli; their protoplasm has also been rendered clear by the action of the potassa solution, so that the various forms of the crystals are distinctly seen. Near the elastic fibers of the alveolar septa, the remains of degenerated cells, in the form of groups of crystals associated with black pigment, are seen. On the left side of the figure, the cheesy portion of the tubercle commences.

Fig. 2 represents an alveolar from a section of tuberculous lung, which had been exposed to the action of the potassa solution, until the protoplasm of the cells was completely destroyed, and the crystals exposed to full view.

Fig. 3 represents three fat-cells from the connective tissue, binding together a group of bronchial lymphatic glands; they are filled with fatty-acid crystals, as mentioned in the text.

Fig. 4 represents the empty membranes of some of these cells, after the boiling of the section in ether.

Fig. 5 represents two fat-cells from the vicinity of the preceding cells, in which the fat appears to have been converted into pigment.

Fig. 6 represents various forms of groups of fatty-acid crystals, met with in the section taken from an indurated portion of the tuberculous lung bordering a cavern.

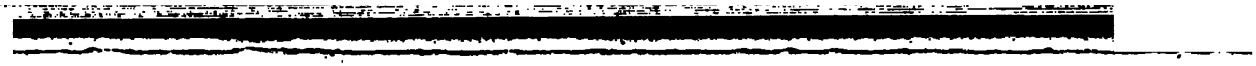
Fig. 7 represents a small portion of a section of a bronchial lymphatic gland, mentioned in the text. The glandular parenchyma has been destroyed by the action of the potash solution, exposing the crystals to full view.

Fig. 8 represents the fatty acid crystals arising from patches and globules of fat in tuberculous sputa, treated with a solution of caustic potash.

Fig. 9. Pseudo-bacilli lepræ; *a*, different forms of the crystals; *b*, two hepatic cells, in which the pseudo-bacilli are seen to arise from fat-globules; *c*, remains of a hepatic cell, with the pseudo-bacilli lying between the fat-globules; *d*, hepatic cell containing very minute lancet-shaped crystals with minute fat-globules; when illuminated with oblique light, they all appear very highly refractive.

All the figures are magn

NEW ORLEANS, Nov.



Society Reports.

ARTICLE II.

AMERICAN DERMATOLOGICAL ASSOCIATION. (Continued from page 513, November number).

SECOND DAY—THURSDAY, AUG. 31.

MORNING SESSION.

The President called the meeting to order at ten o'clock. Dr. W. A. Hardaway, of St. Louis, reported a case of Pigmented Neoplasm of the Skin, and presented a colored portrait of the patient for inspection.

DISCUSSION.

Dr. Heitzmann, being called upon for his report of the microscopical appearance of the growth, said that he had received a small piece of the tumor, about one-fourth of an inch in diameter, which he had carefully examined. A transverse section had one striking peculiarity to the naked eye; that is, the linear portion of the growth, close above the subcutaneous tissue, contained dark brown pigment, while those parts above were spotted. Microscopically, the epidermal layer was considerably thinned, consisting only of three or four rows of cuboidal cells, beside the usual epithelium. The Malpighian layer was nearly lost; the lower layer of epidermis was nearly normal. The derma proper, on the contrary, was considerably altered, and greatly thickened; in this thickened portion several things were noticed. Growing toward the subcutaneous tissue were nests filled with tissue constituted entirely of medullary and embryonal bodies; there were some structureless bodies, corpuscles with indistinct nuclei, and others

with distinct nuclei, the detection of which required high powers. Lastly, there were bodies among the mass in the nests, in which plastids could be distinctly made out by studying the nuclei; to these the term myéloplaxes has been applied. In all this there were none of the characteristics of cancer; no marked reticulated body; no epithelial tissue, or nests of nucleated cells; but the material was evidently to a great extent newly formed. In this growth we find pigment accumulating in the medullary tissue in the globular nests, and sparsely in the connective tissue around the nests. The red blood-globules are unchanged, but the delicate reticular tissue is entirely filled with dark pigment.

It follows from this description, that the tumor was a new formation; and the existence of nests entirely devoid of basis substance to constitute medullary tissue, indicates a considerable degree of malignancy. But it is not cancer, for here the epithelial layers were diseased. Therefore, there only remains one variety to consider; it is a sarcoma, or, as he prefers to call it, a myeloma. Three varieties, round, spindle, or giant-cells, are usually described, and several additional forms have been distinguished. Those containing pigment have been called melanotic sarcoma. There is also the angio-lethic sarcoma, or psammoma of Virchow; and Billroth had another variety, which he termed medullary sarcoma, containing alveoli filled with cells (but no epithelium); this was accepted by Cornil and Ranvier, but Billroth in later years gave up the diagnosis of alveolar sarcoma, and concluded that it is a highly developed cancer. He (Dr. Heitzmann) had seen, both in Vienna and in New York, a number of these cases which appeared originally in the skin. One case, seen five or six years ago, he recalled.

The tumor was in the left groin. It formed a small nodule something like a mole. It was extirpated, but recurred; repeated extirpations ended in a like result. After a year or two, the tumor grew very rapidly, and was the size of a child's head. The consulting physicians pronounced it cancer. The overlying skin was so thin that they anticipated ulceration. Shortly afterward, the patient began to vomit a large quantity of sputa, without exhibiting much bronchitis. He (Dr. Heitzmann) examined the sputa, and found, beside the ordinary mucus and pus corpuscles

indicative of bronchitis, a large number of globules, smaller than pus elements; in fact, medullary corpuscles indicating myeloma, and predicted that the secondary formations were forming in the lungs. From this, also, he stated that the primary tumor was not cancer, but really sarcoma, simply from the examination of the sputa. Two months later the patient died, and the lungs were found studded with these sarcomatous granulations; the tumor was also found to be a medullary sarcoma.

The second case occurred in the skin of the large toe in a patient living in the country. The toe was amputated, and an examination revealed the fact that the growth was a very malignant type of alveolar sarcoma.

The third case was this one of Dr. Hardaway's, in speaking of which he said, "I adhere to this diagnosis of alveolar sarcoma, although Billroth has abandoned it, because I think that a tumor which gives rise to secondary tumors which are sarcomatous, must be sarcoma originally. The appearance of the growth in this case described by Dr. Hardaway, showed that at first it was not of a sarcomatous type, but afterward took on these characteristics, which are those of the worst form of sarcoma—a melanoma or pigmented sarcoma. The loose pigment in the center indicates that it has been an unpigmented growth covering over a pigmented one; now, I declare it to be a pigmented medullary sarcoma, the most malignant form of sarcoma. Such tumors generally occur in the skin of the hands and feet; they usually end within two years from the start. I have seen two or three cases in New York. Mr. D. had brown spots which appeared in his hands; afterward nodules formed, and I was called in consultation. After a microscopic examination, I predicted death within three years He died two months after the three years were up."

This case reported by Dr. Hardaway is not one of the worst instances, because originally the growth was local, and there is a tendency to involution, which is not uncommon in myeloma. Swelling of the lymphatics has nothing to do with the tumors. The prognosis is death within three or five years, with the formation of sarcoma nodules in the internal organs

Dr. Duhring said that during the reading of the notes of the

case by Dr. Hardaway, but especially toward the close, where the lesions were described, he had been struck with a certain resemblance to a case he had brought before the Association two years ago. This was omitted in discussing the general diagnosis, and the speaker would like to hear the lecturer's views. On looking at the portrait, he could not help noticing the resemblance to the patient he had presented. It had the same features, especially the orange-colored border; apparently the same lesions, occurring on the body, shoulders, and on the neck and breast, which seemed to the speaker to be almost identical in their clinical aspect with the case now under discussion. He therefore had been surprised by the remarks of Dr. Heitzmann as to the conclusions he had drawn with regard to the nature of the disease. The pigmentation is not brought out very well in the portrait, being simply an obscure discoloration, but the color as seen in the border is almost identical with the case previously brought before the Association. Moreover, the tumor over the nose between the eyebrows is most suggestive of the former case. He asked, with regard to the pigmentation, whether the portrait was reliable?

Dr. Hardaway said that the portrait was very accurate. The centers are entirely free from pigment, but the border is darkly pigmented, with an orange color, except in the primary spots where the pigmentation is very decided.

Dr. Robinson remarked that if it is an alveolar sarcoma, it is strange that it had lasted so long. He asked if it is usual for an alveolar sarcoma to last eight or ten years?

Dr. Heitzmann stated that the tumor originally started with very little malignancy about it. The cells of the older portion were comparatively small; it was only the growth of the last year which showed the larger nests, and consequently a more malignant type.

Dr. Robinson had generally regarded round-celled tumors as being rather rapid in their growth.

Dr. Heitzmann said that it is true, as the rule. Dr. Duhring's case was a round-celled sarcoma, but developed slowly.

Dr. Taylor asked of Dr. Duhring if he would admit the diagnosis of sarcoma in that case, which he presented before the Association as an inflammatory fungoid neoplasm?

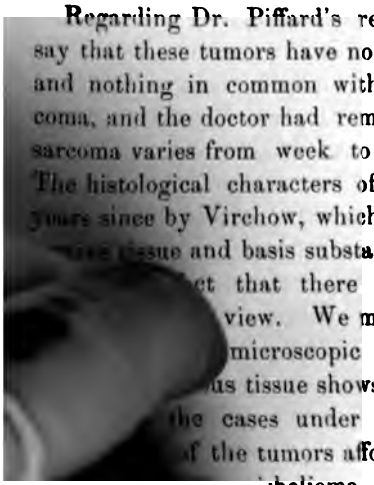
Dr. Duhring replied that he had accepted this view.

Dr. Taylor said that he asked the question because he would like that statement to go upon the record.

Dr. Atkinson reported the following case: An old German, a Hebrew, had within the last few years developed a very unusual condition of the feet. On the left foot, especially, there are a number of small pigmented tumors, looking like little blood-blisters with their contents coagulated, scattered over the foot; there were also large superficial blood-vessels. The lesions evidently began as angioma, and afterward became pigmented, forming melanotic sarcoma. On the leg are several small spots of the same color, resembling the discoloration remaining after chronic eczema in this situation; but they could have no dependence upon mechanical hyperæmia in this instance. The spots are sharply defined, and are permanent. In connection with the case reported by Dr. Hardaway, he would merely mention one point: that all these cases have relations to each other, although the appearances may vary; he believed that this view would simplify the diagnosis. When Dr. Heitzmann mentioned six forms of sarcoma, he merely referred to types. Nature, however, does not jump from one to another, but presents intermediate forms. Therefore, if we group several general ideas together, it will be found that there are some features in common, a consideration of which will prevent us from being puzzled. The general conclusion that there is this wide limit to the type, and an almost imperceptible merging of one form of new growth into another, will simplify diagnosis very much. Then, again, we have the interesting question as to the co-existence of tumors, probably not dependent upon metastasis, nor upon constitutional causes, which is an old doctrine, but perhaps due to trophic disturbances from causes residing in the nervous system. The fact is, that the new growth depends not upon a constitutional condition, but upon local conditions, which may be wide-spread, for instance in the skin, and which gives rise to similar tumors in different localities. This is also exhibited by some benign tumors, as fibroma molluscum, and certain forms of nævi. This is mentioned in order to show that the constitutional causes are not necessary to explain the wide-spread character of the lesion.

it. Ten years have since passed, and the science has made great advance. His work on the Microscopic Morphology of the Animal Body in Health and Disease is now in the hands of the binder, and will be issued next week. In it this question had been discussed more completely than he could do at present. The whole subject of tumors has been much simplified; under twelve heads we can now place all tumors, with several varieties; so that there need be not much difficulty in classifying tumors. Still, there are questions that are not satisfactorily settled; among these is the origin of sarcoma. Dyscrasia, etc., are terms which for hundreds of years have filled medical books, but are still unexplained. Everybody speculates upon these matters, but without much profit; if one contends that the cause is constitutional, he finds support; if he says it is local, he will also find others to agree with him. The stand taken by the speaker is that "we don't know." Let us wait until facts come to throw light upon the etiology of tumors, but so far we do not know, and that closes all discussion.

Regarding Dr. Piffard's remark as to the structure, he must say that these tumors have nothing in common with epithelioma, and nothing in common with lupus. He had called them sarcoma, and the doctor had reminded him that the definition of sarcoma varies from week to week. This really is not true. The histological characters of sarcoma were established twenty years since by Virchow, which, in short, are "embryonal connective tissue and basis substance," which is eminently satisfac-



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at he had been much interested in the cases d it seemed to him that the proper performance

Dr. Piffard said that he understood that the characteristics of this growth were the absence of change in the epithelial layers and the occurrence of lobuli filled with plastids and granular substance, and that this co exists with the deposit of pigment. He stated that he has in his possession sections showing the same appearances: absence of changes in the epithelial layers; lobuli filled with cells. One of these cases he had reported, and Dr. White reviewed the paper, and declared that it was a case of epithelioma, although there was no dipping down of the epithelial layers into the rete. What was remarkable in his case was, that ulceration was so long deferred; in one case it was eight years, in another two years. Friedrich Friedländer and Thoma Coloniati also refer to this peculiarity.

The case he now referred to was one he had described as rodent ulcer, *lupus exedens*, and the condition is also described by the authorities just named, as well as by himself eight years ago. The only difference that he could see was that in his own case, there were pigmented granules; otherwise it was the same, so far as descriptions and drawings are concerned. He did not, however, consider this as agreeing with Dr. Duhring's case, but rather as belonging to rodent ulcers, rather lupoid than epitheliomatous. When it comes to the diagnosis of sarcoma, there is no uniformity in the distinction, and the word sarcoma has been applied to everything which is not carcinoma. If we accept this definition of sarcoma, then the growth is sarcomatous, but it is not so in the ordinary application of the term.

This disorder is not very malignant during the life of the patient; it is a slow growth, and slowly tending to ulceration. The point he wished to make is, that this development tends to enlargement of glands, or has a strumous tendency. He understands that Dr. Fox, who saw the case, also regarded it as of a lupoid nature.

Dr. Hardaway said that Dr. Fox had seen the case, but he was not aware that he had come to a positive conclusion with regard to it.

Dr. Heitzmann said that oncology is a most interesting study, but before our own day such knowledge was not possible. Virchow commenced to write a work on tumors, but never finished

it. Ten years have since passed, and the science has made great advance. His work on the Microscopic Morphology of the Animal Body in Health and Disease is now in the hands of the binder, and will be issued next week. In it this question had been discussed more completely than he could do at present. The whole subject of tumors has been much simplified; under twelve heads we can now place all tumors, with several varieties; so that there need be not much difficulty in classifying tumors. Still, there are questions that are not satisfactorily settled; among these is the origin of sarcoma. Dyscrasia, etc., are terms which for hundreds of years have filled medical books, but are still unexplained. Everybody speculates upon these matters, but without much profit; if one contends that the cause is constitutional, he finds support; if he says it is local, he will also find others to agree with him. The stand taken by the speaker is that "we don't know." Let us wait until facts come to throw light upon the etiology of tumors, but so far we do not know, and that closes all discussion.

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Dr. Hyde said that he had been much interested in the cases just reported; and it seemed to him that the proper performance

of the work of this Association should be a subject of congratulation among its members, and especially the opportunity of seeing such rare cases of disease as that presented by Dr. Duhring at the last meeting. He had himself had a case which should be classed with these; his misfortune was that the death of the patient only occurred a few days before he left Chicago, and he had not had the time to prepare the sections and report the case for presentation. A piece of the tumor which had been excised, had been examined by Dr. Heitzmann, who pronounced it a case of globo-myeloma or sarcoma. The case is of increased interest since he had reported it, as he had watched the symptoms going on until death, and had taken the time to follow up the case. He had reported the case to the authorities as one of death from sarcoma. It is to be noticed that no special reference was made to the case in the classification in his address of Saturday, except in its proper place under the sarcomata.

Dr. Piffard said that Dr. Heitzmann had referred to the pathology of lupus as if it had been conclusively settled; but if he refers to the usual authorities, he will find that it is very unsettled. He spoke of it as simply a form of inflammation, but this will depend upon what he understands by inflammation. Microscopically, he will find in some a diffuse infiltration of small round cells; in others giant-cells; in some, aggregated in nests, in still others, infiltrating, and associated with a varying amount of inflammation, which is characteristic. We have different forms of lupus, which differ widely; he could not see any connection between those having small round cells, and others containing the giant-cells or myeloplaxes of the French authors, such as are also found in syphilis, phthisis, and other diseases.

Dr. Hardaway said that he must confess himself much interested in the discussion of his case. From a clinical standpoint, he was himself inclined to regard it as a case of lupus, and for this reason adopted the name by which it is announced in the programme, simply terming it a pigmented neoplasm. He noticed the resemblance to Dr. Duhring's case from the written description. He could not understand the prognosis given by Dr. Heitzmann. The case had gone on for ten years; the first infiltrated plaques upon the forehead were in the same condition

as they were years ago, except that they appear to be undergoing involution. He promised to report from time to time the future progress of the case, in order to follow up the natural history as far as possible.

Dr. Hyde regretted very much indeed that Dr. Hardaway was absent last year, and also that the speaker himself was not present when Dr. Duhring presented his case. This shows the importance of attending regularly the meetings of the Association. During the discussion of this case of Dr. Hardaway, he had been struck particularly with its resemblance to Dr. Duhring's case.

AFTERNOON SESSION, THREE O'CLOCK.

Dr. Robinson read a paper on The Nerves of the Skin.

Dr. Heitzmann, in opening the discussion, said that it was only a little over a month since Dr. Robinson had shown him these specimens, and when he examined them, he was simply amazed; they furnish the solution of a puzzle, where we had none before. The general opinion as to the termination of the skin-nerves is, that they form bulbs; beside the Pacinian corpuscles, we know that there are end-bulbs, described by Meissner, Wagner, and others; but the actual mode of termination of tactile nerves within the bulbs was not known. Dr. Robinson has settled this question. Our Association must be congratulated upon first listening to such a paper, but a little credit was claimed by the speaker for inducing Dr. Robinson to bring it before the Association. In fact, he could corroborate every word that is contained in this communication. What the lecturer had discovered upset all our previous ideas on the subject. It was formerly supposed that the nerves terminated like buds, and that impressions were conveyed backward from these papillæ to the nerves; but much difficulty existed with regard to the Pacinian corpuscles, which are generally found in the deeper layer of the derma, and in remote situations, like the mesentery, and other situations in which ordinary sensation is not present, as in the periosteum of the petrous portion of the temporal bone.

Before hearing Dr. Robinson's explanation, he could never understand why they existed in these places. We knew that many medullated nerve-fibers end in plexuses, but he regarded

the formation of a loop as just as much a termination of a nerve in the case of the Pacinian corpuscles as in the other; the new fact is that they uniformly end in a plexus, and that one nerve enters the bulb, but another always leaves it, and that there is at the point where the bulb exists a plexus; an apparatus for condensing the nervous impression, like the electrical apparatus. He repeated that he would answer for every word that the lecturer had said, and he wished to express his admiration of the paper presented.

Dr. Piffard merely wished to endorse Dr. Heitzmann's remarks, and to state that we are very fortunate in having in the Association those who are able and willing to conduct such researches, which must be a labor of love, and therefore deserve full consideration and appreciation.

Dr. Hyde said that he could only repeat, on the part of all who have heard the admirable paper, their satisfaction and pleasure at witnessing such admirable work.

Dr. Robinson said, in conclusion, that he had hesitated very much before bringing this subject before the Association, for fear that it might not interest the members. He was very glad at its kind reception, and that it was found of any interest whatever. He felt that the truth must come out at some time; it is a duty to ourselves to state the truth, and to look for justice to the future. He invited the members to examine the specimens which he would present in the morning.

Dr. J. C. White, of Boston, read a paper on the Question of Contagion in Leprosy.*

DISCUSSION.

Dr. Rohé said that a few years ago he had reported two cases of leprosy which had come under his observation, and he recalled a third case, not yet reported. The first case was a man, a native of New York, who went to Cuba, and resided there from eight to nine years, and then returned to this country, and lived in Baltimore. A number of years after his return, he thought fourteen, he first manifested symptoms of leprosy. Between two and three years after the symptoms first appeared, he came under Dr.

* Published in the *Amer. Jour. of the Med. Sci.*, Oct., 1882.

Rohé's care. There was no doubt about the disease; it was a typical case of tubercular leprosy. The man was a liar. He gave one history to the speaker in Baltimore, and afterward went to New York, where he gave another history to Dr. Fox; but it is probably true that the period of time which elapsed, from his leaving Cuba, where there were lepers, and the first manifestation of the disease here, was about fourteen years. The patient subsequently died in New York.

While attending this case in the hospital in Baltimore, in 1878, another patient consulted him. A woman, a native of Maryland, had gone in 1855 to New Orleans, where she had yellow fever, but recovered. She subsequently traveled through the South, and returned to Baltimore in 1866. In 1869 she was pregnant with her last child, and while pregnant, the symptoms first manifested themselves, appearing first as large bullæ particularly. This case was published in the *American Journal of the Medical Sciences*, in July, 1878. The woman died in 1878 or 1879. The child which she was carrying when the symptoms first appeared, was a very fair little girl, when seen in 1878. Subsequently, on his return to Baltimore, he had searched for the little girl, and found that she had had scarlet fever, but no evidence of leprosy. The husband of the woman had lived with her and cohabited with her for nine years after the appearance of the leprosy, but exhibited no signs of the disease himself, and no member of her family had shown any of its manifestations. Dr. Rohe believed that for a time the man Brown, the first case, had lived in the same section of the city, but how near, he had not been able to discover. Of the diagnosis there can be no doubt; Dr. Atkinson also saw the cases. They were both typical cases.

In 1879 he had visited New Orleans, and saw a case afterward published in the Board of Health Reports of Louisiana, coming from Tèche parish, one of the infected parishes. A point of interest in the history of the disease occurs in this connection. Among the alleged origins of leprosy in Tracadie, is stated to be the arrival of some creoles from Louisiana, and among them was the family of a Frenchman from St. Malo, in France. The first case that occurred in Louisiana was that of a Catholic priest who had been ministering to these patients in the Tèche parishes; he

was never confined in a hospital, but he was seen by Dr. Brown, who pronounced it a case of leprosy, and he died within a month.

As to inoculation, he found it hard to believe that a disease like leprosy could be inoculated; and the cause assigned by the doctor in the Sandwich Islands, the pricking of a pin, is very doubtful. Such slight lesions are so frequent, and where the period of incubation extends over a year, there may be a question as to the exact time and manner of inoculation. So far as the bacillus lepræ is concerned, he could not offer an opinion from personal observation. The practical objection to the bacillus theory, is the difficulty in seeing any likeness between leprosy and the ordinary contagious diseases. The period of incubation varies from one to sixteen years; no other disease shows such variation. Then, again, we must admit inoculation as the principal method of communication, but he had not been able to satisfy himself that leprosy is inoculable in the ordinary sense. That it may be inoculated is possible, but the only experiment that could settle this point must be made upon human beings. As far as the danger from this course is concerned, he would be willing to be inoculated with the bacillus lepræ, if he were willing to be inoculated with anything from another person. He had reached the point where he could say that he did not know what causes leprosy.

Dr. Piffard could not understand why so many authorities regard leprosy as non-contagious, if they have read the report of the Royal College of Physicians upon this subject, and regard the writers of it as capable observers [illegible] worthy of credence. From the time that he read that report he was convinced that leprosy was most certainly capable [illegible] in some way or other; not in the way [illegible] some way.

In 1843, a child [illegible] by being vaccinated [illegible] came to this country, [illegible] died there. Another [illegible] there two years, and died [illegible] contact with hundreds of [illegible] ago—since then only two [illegible]

State of New York. One of these had been associated with lepers in Mexico. The other was presented by Dr. Bulkley before the New York Pathological Society. It had never been outside of New York, and there were no assignable means of acquiring it from the former cases. These few cases show that there is very little danger of communicating leprosy in the ordinary way, like the ordinary contagious diseases, for instance.

The speaker claimed, as long ago as 1876, that this disease is inoculable, if the blood or secretions are brought into contact with a healthy person by inoculation, just like syphilis; and this is the usual means of transmission. These are the methods of communicating the disease, in which he understood Dr. White as agreeing with him.

Dr. White also believes the statement of Dr. Fisher, in charge of the hospital at Honolulu, who claims, in his report to the Board of Health of the Hawaiian Islands, that leprosy is only an old outgrowth from syphilis. At the meeting last week of the New York County Medical Society, the speaker took pains to combat the views of Dr. Fisher, at the request of the President of the Society. In preparing this communication, as a committee on the subject, he had sent circulars all over the country, to medical journals, and to members of this Association. This committee had a reply from only one of the members of the Association, Dr. Wigglesworth, of Boston, who said that he believed that there was a case in the hands of Dr. White. He had received a letter from physicians in Louisiana, and heard of some cases which turned out to be psoriasis. The committee therefore concluded that there must be only one case in this country!

Dr. Hardaway said that with regard to the nature of this disease we have evidence of the most contradictory sort, of reliable observers some pronounce it contagious, others are equally positive that it is not. When we learn the natural history of the disease better, we may learn that there are periods in which it is contagious, and at others not. It also appears to be hereditary

hilis. In some stages it may be contagious, in others

e may learn that at some times the disease may

thers quiescent, and that it has distinct periods

of development. In the course of time the virulence of the disease may wear out, and this may explain the fact that intimate connection with the disease fails to communicate it.

Dr. Duhring said that from reading reports of cases, his attention of late had been much more strongly drawn to the subject of the contagiousness of leprosy than before; there is a good deal of evidence pointing that way, but further than this he did not feel warranted in making any statement. The time has not yet arrived for making any positive decision. He asked with regard to the Cape Breton cases, if the reporter had included those of James Campbell and Neil McLean?

Dr. White said that he had.

Dr. Duhring stated that he had received a letter from Dr. Fletcher, asking his opinion upon these cases. He had been impressed with the careful manner in which the notes had been drawn up. He would not present this communication to the Association as nearly all of the information had been published. He believed that the main points are contained in Dr. White's paper.

Dr. Atkinson said that he only would express his unhesitating belief in the contagiousness of leprosy; he finds no obstacle in the slowness of development of the poison. There is almost a perfect analogy in syphilis. Slow development, impossibility of communication by atmospheric influence, or ordinary intercourse. We associate with syphilitic patients in the hospital, but do not acquire syphilis, and there is no contagious disease slower in its development, or more chronic in its course. He could understand why it is so little liable to communication, and most likely to be acquired by those in immediate intercourse with lepers.

Dr. Hyde said that he had not the same confidence that Dr. White had, that the contagiousness of leprosy is so definitely stated in the Hebrew Scriptures. The leper, it is true, was ceremonially unclean, but so was a woman while menstruating, or the man who had a gonorrhœal discharge, or a man who had touched a dead body. The leper passed along the street, crying, "unclean! unclean!" so that others might avoid him, not because he had a contagious disease, but [illegible] to communi-

ally defiled. We now know that psoriasis, scabies, and other skin diseases were confounded with leprosy, at that time. We have evidence of this in the cure of Gehazi, by Elijah. In referring to an article by him upon this subject, the editor of the *Medical and Surgical Reporter*, of Philadelphia, said that he was wrong, but did not state why.

With regard to the bacillus lepræ, he had been much interested in Dr. Schmidt's paper which had been publishedd in the CHICAGO MEDICAL JOURNAL AND EXAMINER, and in the specimens also. He inquired if Dr. White had seen that paper.

Dr. White said that Dr. Schmidt had simply failed to find the bacillus lepræ.

Dr. Atkinson said that Dr. Bermann, of Baltimore, had asked Dr. Schmidt to send him some of his preparations, and some he had found full of the bacillus.

Dr. Hyde.— The paper of Dr. Schmidt and the sections, were sent by the author to a committee in Chicago, and were referred by the committee to Drs. Fenger, Curtis and himself. The great care and patience with which the preparations were made, was very evident. The speaker went over the specimens, and found in some a number of bacilli, but in others there were none. In every case in which these bacilli were found, there had been an open wound or the slide had been exposed to the air; in no single instance, in which a section of a tubercle had been kept from the external air, and carefully mounted, was there any bacillus lepræ to be found. He therefore concluded that it is a myth.

Dr. White said that Dr. Hyde must admit that he simply failed to find what others claim to have found. He had no doubt that Dr. Schmidt is a truthful and able observer, but no one would say that these other gentlemen were not the same. We are in the position of having one observer fail to find what many others of equal reputation have succeeded in finding. Koch and Cornil and others affirm the existence of the bacillus lepræ.

Dr. Atkinson did not consider it as a matter of chance, but one of skill and experience. In the specimens that he exhibited [redacted] Niagara Falls, carefully prepared by Dr. Bermann, these [redacted]lli were shown perfectly. After reading Dr. Schmidt's com-[redacted]tion in the CHICAGO MEDICAL JOURNAL AND EXAMINER,

he examined a portion of a tubercle which he cut out of the lobe of the ear, which had not ulcerated. He was willing to stake his life on the fact, after an examination of this specimen, that in the tubercles of leprosy and the neighboring parts, there is a bacillus that is not due to exposure to the air, but is developed in the new growth. The finding of this bacillus is not a mere matter of putting a section under the microscope and looking at it, but of properly managing the light and the method of examination. The bacillus lepræ exists; whether it is the cause of the disease or not is another matter.

Dr. Rohé said that he was familiar with the paper of Dr. Schmidt. He could state that no one could know Dr. Schmidt personally, without being convinced that he never says anything that he does not absolutely believe to be true.

Dr. White, in conclusion, referred to the experience of one man, Prof. Koebner, who for three years examined cases of leprosy without finding any, but now finds bacilli in every one. What makes the difference? There is the same careful, conscientious man as before; but it is simply experience and skill. If we throw out these results because a few are unable to obtain them, we should likewise throw out the result of the study of the minute anatomy of a great portion of the human frame, because there is still some difference of opinion with regard to it.

EVENING SESSION.

Dr. C. Heitzmann, of New York, made some remarks on the use of ergot in skin diseases.

DISCUSSION.

Dr. Robinson said that he saw no reason for changing the opinion he had previously expressed. A great many cases of acne had been benefited, but no cases had been cured. He believed that ergot could assist local remedies, as it seems to act upon the arterioles and capillaries, and perhaps more upon the muscular fibers of the arterioles and the erector pili muscles of the skin. It does reduce hyperæmia and diminish the number of acne spots, if not causing a complete disappearance of the eruption.

Dr. White inquired if ergot was used alone in the cases.

Dr. Heitzmann said that he agreed with Dr. Robinson that ergot only aids, and that it is necessary to the cure to use other remedies.

Dr. White asked what benefit is obtained from ergot more than from local remedies alone?

Dr. Heitzmann said that after using local remedies without success he had obtained a cure by administering ergot in addition. After using the ergot, the acceleration of the cure was great; he did not attempt to explain the cause.

Dr. White.—The physiological action of ergot upon the involuntary muscular fiber is known, and it has been used in many congestive affections; but it seems that it is just in acute hyperæmic disorders of the skin that Dr. Heitzmann has observed that it has no power; but in so ill-defined a disease as pruritus, and in so uncertain a disease as acne, he had found it to do the greatest good. The speaker had given ergot only in cases of pruritus, but he could not say that any of his cases had been benefited by it, and he could not understand how any one could say it. He could not see how it would be possible to determine this point; every case is a rule unto itself. The disease is a mild one and may terminate at any time; we can not positively say that we have abbreviated it a single day. Acne runs such an irregular course that he could not see how ergot could be of any good. He had a case of urticaria which he had been in the habit of showing to the class, to illustrate how many remedies may be given in urticaria. The case lasted nine weeks; the woman returned from an extended trip in the south, no better. The day after her return, the hottest day in the year, the eruption disappeared and has never returned. Had he given ergot as the last drug, the cure would have been attributed to it. Unless a large number of cases were presented, and especially a series in which the drug was administered alone, it could not be possible to arrive at any conclusion, especially with regard to such a disease as acne. He had considerable experience in the disorder, although he never gives internal treatment, and until statistics were presented showing success better than his own, he is not likely to change.

Dr. Piffard said that he had been present at the New York

Dermatological Society when Dr. Denslow read the paper referred to, and shortly afterwards presented a case before the Society which had lasted about a year and in which a number of remedies had been tried; it was a bad case. Dr. Denslow took her under his care; he gave her ergot and used mercurial ointment locally; the same ointment had been previously used without result. Shortly afterward Dr. D. left the city and she returned; and he had been very much impressed by the marked improvement. He left off the mercurial ointment, but kept up the ergot until she was completely cured for the time. The time went on, four months perhaps, and she returned with the same eruption on her face; she was given ergot and the face cleared again. Now when the disease comes back, she goes at once to the ergot without consulting him. This case can be taken as convincing as to the usefulness of ergot. In this way therapeutic experience is built up. In another case he had been obliged to discontinue arsenic on account of albuminuria; and in erythema and rosacea he had not seen it do good, but in cases where there was a doubt whether it was erythema nodosum or rosacea, it had always been serviceable.

In prurigo he had tried it, and in some cases where the crops came out from time to time; after the ergot was given no more crops appeared. In psoriasis he had given it because he had used a drug, *ustilago maidis*, in ichthyosis, a similar disease.

He was certainly very glad to hear the experience of Dr. Heitzmann, especially as he is usually skeptical about the effects of medicines given internally in cases of skin disease. Dr. White inquires, how can we tell whether the results obtained are the effects of the drug or not? In just the same manner as observed with regard to local remedies.

Dr. Robinson inquired as to the condition of the uterus in the cases benefited?

Dr. Piffard said that the uterine condition was bad; he sent her to Dr. Castle, who made an examination and treated her locally. The acne got well long before the uterus did; in fact the uterus is not cured yet.

Dr. Hardaway said that he had used ergot seven or eight years ago for a certain class of cases. He thought that he had seen it

do good in erythematous eczema; and it is his habit to give it in large doses (3 drchms. fld. extract) in eczema, and believes it worthy of further trial. A number of cases have recovered apparently from the effects of the ergot; but he had used it combined with local measures. In the treatment of rosacea, the use of ergot by hypodermic injection is an old treatment; it was recommended at least ten years ago; he had used it locally in this disorder for a number of years, and also in eczema. He had been in the habit of combining twenty or thirty grains of ergotine with the diachylon ointment.

He had also treated urticaria with ergot, very chronic, inveterate cases, but had had no result whatever. In one case, after going through the Materia Medica without effect, he tried with ergot, but also with no results. This patient had also alopecia areata—a rare combination. He afterward took a sea voyage and returned well.

He had never been able to satisfy himself that he had obtained any result from ergot in purpura; he had also used it in peliosis rheumatica, without benefit. In acne he had used ergot; he had also used Vleminckx's solution locally with splendid results. He had seen results from this solution which he had not been able to obtain by other means. Possibly the good effects observed by Dr. Heitzmann, were due solely to the application of this solution.

Dr. Duhring inquired the number of cases of psoriasis in which it had been tried.

Dr. Heitzmann said only three or four.

Dr. White, in reply to a question, said that he never used specific remedies for acne. The great majority of cases need medicine internally, but it is not given for any specific action on the eruption.

Dr. Hyde had used ergot in purpura a number of times, and it had seemed perfectly valueless. He had several very interesting cases during last year and this year. He had used Squibb's ergot exclusively, but without effect. With regard to the theory of Dr. Denslow as to the state of the muscles in cases of acne, it [illegible] persons even with the most vigorous muscles in [illegible]ne, and in after life, when the muscles lose their

Dr. Heitzmann said that he thought that what he had said was cautious enough. Dr. White is correct in saying that if we wish a thorough report, we must have a series of cases. This he would not deny; he simply had said that he had seen certain results in a number of cases, and that is all he intended to say. Truth conquers finally. We do not know how we cure a patient; we are only certain that we may cure them. His only desire was that the drug might have a further trial. We need not rely upon old world methods, for we are in this country at least greatly ahead as for as dermatology is concerned. If ergot is capable of assisting other remedies, as stated by Dr. Robinson, it is not without value in skin diseases.

Dr. White said that he had not criticised the remarks of the lecturer. but his method; he would not himself have brought such a report before this body. He would not, for instance, have given ergot in combination with other treatment, but would have given it alone before reporting its effects. Dr. Piffard's case is one to the point; we should have the effects of a remedy alone and not mixed up with other treatment. The report of Dr. Heitzmann would have been much more convincing if the drug had been given by itself.

Dr. I. E. Atkinson, of Baltimore, presented a communication on Syphiloderma Papulosum Circinatum.*

DISCUSSION.

Dr. Heitzmann simply expressed his pleasure at hearing this admirable paper. The only similar case that he knew of is that depicted in Kaposi's Atlas. He had not met with any case of the kind himself.

Dr. White reported two cases of the disease, both of which he had seen on the same day; one a man, the other a woman. Neither exhibited any pigmentation; they were probably in the early stage of the affection. Being submitted to the class at Harvard, they were pronounced without hesitation to be ringworm. They looked like typical cases of tinea circinata. Nothing could be more deceptive than these cases, but a closer examination revealed their syphilitic character. Pigmentation rarely accom-

* Published in the *Jour. of Cut. and Ven. Dis.*, Oct., 1882.

panied or followed this form of disease, in the cases he had seen. In one case he had much doubt about it, until he had submitted it to microscopic investigation; he would have been obliged to agree with the diagnosis of the class, if he had looked simply to the face-lesion, without further examination.

Dr. Atkinson referred to a skin disease in negroes; the speaker thought that the study of these disorders in the negro presents great difficulties. Syphilitic affections, especially, assume very peculiar forms. He inquired if the lecturer could always satisfy himself in his diagnosis, whether they are syphilitic or not?

Dr. Atkinson said that he generally could; the papular varieties especially. The papules are very often pointed with pus, which shows like a pearl through the dark skin. He had never seen it depicted with the absence of pigmentation at the point of the papule, but had seen it, however, where a little pus could be extruded by pressure.

Dr. Taylor inquired how many cases the lecturer had seen of the disease he had reported?

Dr. Atkinson said that he had reported five or six, and had a recollection of several others.

Dr. Taylor asked the size of the papules when the involution began in the center?

Dr. Atkinson. They were probably the size of a small pea, and a pigment deposit might follow, spreading from the center, very much like erythema nodosum.

Dr. Taylor asked what regions were affected?

Dr. Atkinson. On the face, especially, but he had seen one case in which the eruption was quite as copious as in the patient of Jullien, where the body was nearly covered with it. In the majority of cases, the only remarkable thing about the lesions is the concentric arrangement.

Dr. Taylor asked if he correctly understood the lecturer to say that the late tubercular syphilide has no tendency to this extension, like ringworm?

Dr. Atkinson said; yes, the late papular-circinate lesion is an open lesion.

Dr. Taylor said he thought that this is not always so; he regarded the experience of Dr. Atkinson as exceptional. The

speaker had pursued this study for years, and thought that it is not the nature of the early papular syphiloderm to run this course, but the late papular syphilide. There is a decided predilection for this form, and a decided preference for the face, knees and elbows. He could only himself recall six cases of the form of lesion described.

There are diagnostic points about these cases, in the face, which have not been spoken of, and may help: There is never any inflammation of the hair-follicles; sometimes the hair will fall out, but there is no appearance such as is seen in tinea tonsurans. When it comes on the body, on the chest, it does not cover the pubic region, as tinea does, and it also appears on the knees.

The experience of the lecturer is unusual. The lesion in the face the size of a half-dollar to a dollar, and pursuing this crescentic course, is rare; he could not recall a case in which he had ever seen such a patch run larger than a dollar. With reference to the discoloration, he called attention to this point, which he had noticed: that on the face the border of redness will remain for a long time, whereas on the body it fades out; a point connected with the circulation.

Dr. Rohé said that a colored woman came to his clinic in Baltimore with a very peculiar eruption over the ear. He examined her, but refrained from making a diagnosis. She returned within a few days He still could not classify the lesion under any form of skin disease that he knew of. He suspected syphilis, found cicatrices in her mouth, and then referred her to the venereal department, where it was pronounced to be a case of syphilis. This lesion presented almost the identical characters described by the lecturer. Papules small, and with small acuminated collections of pus at the apex of each papule. He could not diagnosticate it as any form of pure skin lesion, as he had not seen a case of this form of syphiloderm before; but this instance was recalled to his mind upon hearing Dr. Atkinson's remarks.

Dr. Hardaway said that those who had seen much of skin disease in negroes, would endorse the lecturer's observation, that there is a tendency to pustule formation, a pyogenic proclivity, in papular lesions.

Dr. Hyde said that he had not had much experience with skin

diseases in negroes, but he had seen the peculiar type of eruption referred to, and it struck him as being the best description he had ever seen.

Dr. Atkinson said that it may be that in negroes this form of eruption is more common. He had seen six or eight cases—possibly a dozen; two new cases he had seen in the last six months. In all was seen a very close resemblance to ringworm; this resemblance is shown very graphically in the photographs taken from the cases.

Dr. Taylor said that he had seen syphilitic patches as large around as a goblet. It commences as a tubercle, and looks as if it were going to be extensive; but as it extends it becomes more superficial, and it grows redder. He regarded it as not an early lesion, but as tubercular at the beginning.

Dr. White said that in the case he had referred to, there was no tubercle, or even a papule, in the case; it looked more like erythema, as it was more superficial; in fact, its appearance was most like ringworm. There was no positive proof; in not one case could he get a good history of infection, but he regarded it as absolutely an early manifestation.

Dr. Atkinson said that the way he had found one case was, that it had been brought to him as a case of ringworm without any fungus.

Dr. Taylor said that Dr. White refers to what he had described as the erythematous syphilide. There are three grand varieties: erythema, papule, and tubercle; the latter belong to the late manifestations. He did not, however, mean to criticise the doctor's remarks. He inquired if there had been much infiltration in the cases?

Dr. Atkinson said that there was a distinct ring of infiltration around the growth, like ringworm. In the cases of general eruption, it was very interesting to watch this feature; he could hardly convince himself that it was syphilis.

Dr. Taylor said that his object in asking the questions was to find out whether it would be necessary to devote a whole chapter to this lesion, or if it could be classed with roseola, papulæ, and tuberculæ.

Dr. White, of Boston, chairman of the committee on Statistics, read his annual report, which was adopted and referred for publication.

AN EXPERIENCE IN SKIN DISEASE.

Dr. White related an experience in skin disease, in the treatment of corns and warts. A lady who had been under treatment for some time, without effect, for large warts upon the hands, was cured by the use of a mixture of salicylic acid, cannabis Indica and collodion. He had since used the compound with very good results; usually ordering half a drachm of the acid, ten grains of cannabis Indica, and one ounce of collodion.

Dr. Piffard said that this formula had been published by Dr. Train Green, of Pennsylvania, in the *Medical and Surgical Reporter*, some weeks ago. He had tried it himself, without seeing the slightest effect from it.

Dr. White said that in fifty cases, he had never seen it fail. It should be painted on in successive coats, at short intervals, until three or four coats are given. The next day, the corn or wart is easily scraped off.

Dr. Piffard said that he preferred the cautery.

Dr. Hardaway had passed the electrical needle through the base of the growth, in the case of warts, and caused them to disappear.

Dr. Piffard read the following communication from Dr. Sherwell, with the notes of a

CASE OF PELLAGRA.

The enclosed is the history of a case in Dr. G. H. Atkinson's service, and under the care of A. H. Brown, resident L. I. C. Hospital. It is, in my opinion, undoubtedly a case of pellagra, from the rarity of which in this country, I am induced to send it to be included in the list of material at your meeting.

When first seen by me, toward the beginning of July, the eruption, only at that time present on the forehead, cheeks, nose and ears, was decidedly erythematous, but I was in doubt as to its diagnosis; whether severe erythema exsudativum, or erythematous lupus running an extremely rapid course. Have not seen the case

many times; probably four in all. At the consultation previous to the last, could not give positive diagnosis, owing to the fact of the appearance of lesions over the extensor surfaces of the hands and feet, but decided on my last visit that it must be a case of pellagra, as above stated. The skin lesions, and symptoms generally, correspond exactly with those given by all authorities on the subject.

The history is almost necessarily imperfect, as the patient is apathetic in mood now, and was probably never very intelligent. The possibilities as to purpura, or erythematous diseases other than the one claimed, have been carefully considered, and as positively excluded. The eruption on the back is of a different kind from that on other portions of body and limbs, and, I think, results from stasis by recumbent position.

S. SHERWELL, M.D.

Tommaso Caprile, æt. twenty-five; Italian; seaman. Born in Rapallo, near Genoa. Never lived in any other part of the country; never saw or heard of any one about his home having any disease like his. Lived on corn part of the time, but never saw any mouldy or black corn. Never had any skin disease before this time. Spot came first on the forehead, about January, 1882, and extended over the face, hands and body. Patient is despondent much of the time. Has not been at home much of late.

Had no peculiar sensations previous to or accompanying the appearance of the eruption, and no itching or peculiar sensations are present now.

Patient has suppurating glands about the sides of face and neck. Temperature has gone as high as 105½° at different times.

This morning there are fissures, and surfaces from which blood flows slowly.

G. H. ATKINSON, M.D.,
Visiting Surgeon.

A. H. MOORE, M.D.,
House Surgeon.

OFFICERS FOR 1882-3.

President.

DR. R. W. TAYLOR, of New York.

Vice-Presidents.

DR. I. E. ATKINSON, of Baltimore.

DR. A. R. ROBINSON, of New York.

Secretary.

DR. ARTHUR VAN HARLINGEN, of Philadelphia.

Treasurer.

DR. GEORGE H. ROHÉ, of Baltimore.

The next meeting will be held at Lake George, on *Wednesday*, *Thursday* and *Friday*, August 29, 30 and 31, 1883.

INDUCTION OF OFFICERS.

Dr. Hyde, before introducing the President-elect, said that upon assuming the duties of his responsible office, he had asked the coöperation and support of the members during his term of service; now, at the end of two years, he could say that he had abundantly received it, and returned his sincere thanks to the members for their aid and consideration. He would bespeak equal support for his successor, Dr. Taylor, who needed no introduction.

Dr. Taylor, upon taking his seat, thanked the Association for the honor conferred upon him, which was entirely unexpected. He could not state positively that this was the happiest moment of his life, but he fully appreciated the sentiments which actuated the members in their choice, and he was as happy, almost, as he could be. He accepted the duties of the office, and would try to discharge them as well as his predecessor had done, and begged for the same hearty co-operation on the part of the members.

THIRD DAY, SEPTEMBER 1.

A morning session was held, at which specimens were exhibited by Drs. Robinson and Heitzmann.

A business meeting was then held, at which the time and place of the next meeting were determined, and some private business transacted.

The session then adjourned.

Domestic Correspondence.

ARTICLE III.

NEW YORK LETTER.

[The following was accidentally omitted from the letter of our New York correspondent published in our last issue.—ED.]

You have all heard of the terrible Seguin tragedy. It has at least one more cheerful side. It has brought out the most heartfelt expressions of sympathy from all the members of the profession here. Every society has passed resolutions of condolence, and expressed the hope that Dr. Seguin will not withdraw from his work here, where he has taken so high a position. He will go abroad for the present.

The post graduate schools have opened, and are all doing well. The number of pupils is not very large—twenty to thirty—but it will doubtless increase.

We are to have a new weekly medical journal. The New York *Medical Journal and Obstetrical Review* is to drop its obstetrical appendix and come forth as a medical weekly. Dr. Foster, who will continue the editorship, is an excellent editor, though not a very strong writer.

Dr. Marion Sims gave a grand reception to Dr. Gross, of Philadelphia, recently. It was held at the Brunswick Hotel, and was a sumptuous affair.

is being constructed through an old cemetery in this
human remains to the surface, with the possibilities
rts of infectious diseases.

Reviews and Book Notices.

ARTICLE IV.—A SYSTEM OF HUMAN ANATOMY, Including its MEDICAL AND SURGICAL RELATIONS. By HARRISON ALLEN, M.D., Professor of Physiology in the University of Pennsylvania, etc., with a Chapter on Histology by E. O. SHAKESPEARE, M.D. Six sections, containing about 550 pages of letter-press, illustrated with 380 figures on 109 plates, many of which are beautifully colored. The drawings by Hermann Faber, from dissections by the author. Also 250 wood cuts in the text. $3.50 per section. Philadelphia: Henry C. Lea's Son & Co., 1882.

Each section of this work is contained in a cloth cover, rather artistic in design, and eminently adapted for use beside the cadaver, but rather inconvenient in the library. A work like this had been anticipated for some time by those aware of the rapid progress manifested of late in comparative anatomy. The best works on Human Anatomy were, in fact, rapidly growing old. The New Anatomy comes to us with unexpected features, the most remarkable of which is an interesting style. The latest discoveries of science are mentioned in its pages; and it is published in a large clear type and on the best quality of paper. However, for the sake of practitioners we would recommend the publishers to issue leather-bound copies in two or three volumes, separately, as the present style is inconvenient in the office. The part on histology is thorough, but too little of it seems original and so with the illustrations, which are almost too beautiful to be real. The same assertion would not be true of the plates of the second volume, "bones and joints," which are rather inferior in execution. But works of anatomy should be mainly illustrated by

dissections of the human body, and ordinary plates cannot teach much, and should not. The best recommendations would not do credit to this work, and the student of anatomy will be aware of its merits only after a practical use of it; but it certainly fills a wide gap and will be welcomed by all. H. D. V.

ARTICLE V.—SPEECH AND ITS DEFECTS; CONSIDERED PHYSIOLOGICALLY, PATHOLOGICALLY AND REMEDIALLY. By SAMUEL O. L. POTTER, M. A., M. D., Author of "An Index of Comparative Therapeutics," etc. Lea Prize Thesis of Jefferson Medical College. 12 mo., cloth, pp. 117, $1. Philadelphia: P. Blakiston, Son & Co., 1882.

This is a remarkably interesting little book, and, as a thesis, one of great merit, especially in this country, where preliminary medical education is recognized as deficient. The subject is treated in a most interesting manner, especially as to its history; and its bibliography has not been forgotten. In the treatment of stammering and stuttering the author recommends the *motor depressants*, gelsemium, conium, physostigma, lobelia, aconite, etc. Belladonna, hyosciamus stramonium and tonics have their indications also. A number of favorite methods in the hands of renowned quacks of the present day are mentioned and the author adds combinations of consonants and vowels for exercises.

This small treatise will be welcomed by all whose vocal organs or functions are imperfect in any degree; it will repay the curiosity of any reader and forms a valuable addition to the literature of the human voice. Although without statement to this effect, it appears that the present volume was intended as one of the Health Primers published by the same firm, and which have proven a valuable departure in medical writings. H. D. V.

ARTICLE VI.—SOCIAL EQUALITY; A SHORT STUDY IN A MISSING SCIENCE. By WILLIAM HURRELL MALLOCK, Author of "Is Life Worth Living?" 12 mo., cloth, pp. 212. New York: G. P. Putnam's Sons, 1882.

This, like other writings of the well-known author, is remarkable for its agreeable style, something which is becoming scarce in our days. That the principle which is the foundation of this

work, that social inequality is natural to the human character is false, is useless to argue. But the work is timely. It opposes a democratic reaction which menaces to destroy at a stroke a civilization which has been the outcome of centuries of patient work. Let the churches disappear; let the professions disappear; let the various trades follow, and give us the—say co-operative manufacture—the optimum of democracy; would life be worth living under circumstances where the fine arts could no longer exist? Mr. Mallock's book has been strongly criticised by the scientific press, probably because the work does not conform at all with scientific principles and is simply intended for the common reader, yet, we must grant that between natural selection and arch-æsthetism, between causation and spontaneity, the very foundations of science and philosophy are not at all settled, and we firmly believe that Mr. Mallock has written a timely and serviceable book, more appropriate perhaps in his country than here.

ARTICLE VII.—FISTULA, HEMORRHOIDS, PAINFUL ULCER, STRICTURE, PROLAPSUS AND OTHER DISEASES OF THE RECTUM; THEIR DIAGNOSIS AND TREATMENT. By WILLIAM HILLINGHAM, M. D., Surgeon to St. Mark's Hospital for Fistula and Other Diseases of the Rectum, etc. Fourth Revised and Enlarged Edition, with Illustrations. 8 vo., cloth, pp. 168. Philadelphia: P. Blakiston, Son & Co. 1885.

Of the few works exclusively [illegible] this is surely one of the most valuable [illegible] publishers on the happy thought of reprinting [illegible] vantage every surgeon should [illegible] mooted question of the [illegible] the author says that such a thing [illegible] regards phthisis in that case is a [illegible] operation well conducted will [illegible] tive). As to the [illegible] although conversant with the [illegible] injections. In forty-nine [illegible] with Chian turpentine, [illegible] Enucleation is sometimes a [illegible] book possesses a good deal of [illegible]

of the experience of a single surgeon and is a worthy addition to a subject too neglected, in view of suffering humanity.

H. D. V.

ARTICLE VIII.—CLINICAL LECTURES ON THE DISEASE OF THE URINARY ORGANS. By SIR HENRY THOMPSON. Sixth London Editon, Illustrated with 73 Wood Engravings. An 8vo. Pamphlet of 175 pages. 75 cents. Philadelphia: P. Blakiston, Son & Co., 1882.

The author says in the preface: "It may be pardonable, perhaps, to add that I have had the gratification of finding it employed as a text-book in most of the medical schools of Europe, and translated for that purpose into the French, German, Italian, Spanish and Russian languages."

After such a work has reached its sixth edition, and has been presented to the profession in such a form, it would be unpardonable to be without it; and not only the specialist and the ordinary surgeon should have it under the hand, but it is a most excellent text-book for students. Its defects, which are worth mentioning, consist in some of the lectures being of a rather old date, and the prominence given to stone in the bladder being such that other diseases are almost overlooked. Dr. Bigelow's method is favorably commented upon, but the author refuses the name "litholapaxy," and substitutes the name "lithotrity at one sitting."

ARTICLE IX.—THE NEW MATERIALISM. DICTATORIAL UTTERANCES AND THE DECLINE OF THOUGHT. By LIONEL S. BEALE, F. R. S. Pamphlet, pp. 37. London: The Victoria Institute.

The primary object of the Institute is "to investigate fully and [illegible] the most important questions of philosophy and [illegible] but more especially those that bear upon the great truths [illegible] Holy Scripture, with the view of reconciling any ap[illegible]ancies between Christianity and science." The [illegible] Monistic philosophy has conquered the English [illegible] it is high time that men like [illegible]hristian philosophy from its long

when the short curriculum is overcrowded with so many other and more essential sciences. H. D. V.

ARTICLE XII.—A SYSTEM OF SURGERY. By SAMUEL D. GROSS, M.D., LL.D. Illustrated by upwards of 1600 engravings. Sixth Edition, thoroughly revised and greatly improved. In two volumes. 8vo., half Russia. Pp. 1194–1174. Philadelphia. Henry C. Lea's Son & Co., 1882.

In a time when works on surgery are being published at a wonderful rate, it is somewhat refreshing to see the old reliable come out in a revised form for the sixth time, and it is doubtful whether it will lose its prestige as the leading text book of surgery in the land. This last edition is up to the latest progress in the subjects of which it treats. H. D. V.

ARTICLE XIII.—THE EXPERIMENTAL METHOD IN MEDICAL SCIENCE. Cartwright Lectures of 1882. By JOHN C. DALTON, M.D. 12 mo. Cloth. Pp. 108. New York: G. P. Putnam's Sons, 1882.

These three interesting lectures have already appeared in some of the journals but have received a more dignified treatment in the elegant little volume under consideration. They will be read with pleasure, not only by the profession, but by all those interested in scientific researches, although they properly belong in the domain of Medical history.

BOOKS AND PAMPHLETS RECEIVED.

BOOKS.

Ninth Annual Report State Board of Health of Michigan, Year Ending September 30, 1881. Lansing, W. George & Co. 1882.

Index Catalogue Library Surg. General's Office U. S. A. Washington, Government Print. 1882.

A Manual of Hypodermatic Medication. Bartholow. Phila., Lippincott & Co. 1882.

Pathology and Treatment. Salter. Wood's Med. Lib. 1882.

Diseases of the Skin. Duhring. Third Edition. Phila., Lippincott & Co. Chicago, Jansen, McClurg & Co.

Principles and Practice of Surgery. Ashurst. Third Edition. Phila., Lea's Son & Co. Chicago, Jansen, McClurg & Co.

Cornil on Syphilis. Translated by Simes & White. Phila., Lea's Son & Co. Chicago, Jansen, McClurg & Co.

First Aid to the Injured. Shepherd. New York, G. P. Peterson & Co. Chicago, Jansen, McClurg & Co.

Medical Register and Directory, City and County of Philadelphia, P. Blakiston & Son. Chicago, Jansen, McClurg & Co.

Microscopical Morphology. Heitzmann. New York, J. Vail & Co. Chicago, W. T. Keener.

SUPERVISED PROSTITUTION.—The average number of examinations of individual women made in England during the year 1881 in the several places subject to the Acts was 23.65; in 1880 it was 23.50. One thousand, three hundred and fifty nine women were registered for the first time during the year, but a total decrease of 3,056 has taken place since the Acts came into operation. The number of brothels was reduced during the year by 44, being a decrease of 833 since the Acts came into operation. During the year, 489 prostitutes are known to have come into the several districts from unprotected places; 322 of these were found to be diseased on their first medical examination. In 1881, 1,827 were removed from the register, of whom 863 left the districts under the protection of the Acts, 51 married, 234 entered homes, 659 were restored to friends, and 20 died.

Mr. FRANCIS SEYMOUR HADEN, the distinguished member of the Royal College of Surgeons in Great Britain, who has attained a reputation as an etcher equal to that of Rembrandt, was recently given a reception in one of the Chicago clubs. He stated that his first achievements in his art were the fruits of the employ- ments in his practice. Speeches of wel- e occasion by Dr. Chas. Gilman Smith, Mr. Ed. G. Mason, and others.

Editorial.

ENGLISH CRITICISMS OF AMERICANS.

The English nation has adopted several different postures toward this country and its inhabitants, since the former ceased to be its most prosperous and promising colony, and the latter its most humble subjects. It began at an early period by waging actual warfare, whose net results to the mother country in the loss of pounds, shillings and pence it is impossible to compute. To this period of hostilities, there succeeded a series of years in which the United States and its people were either completely ignored in Great Britain, or regarded with a species of contempt which there was not even a pretense of concealing. The hideous caricatures of American life and manners drawn by the pencil of the late Mr. Chas. Dickens, of whom, by the way, it is said that he never drew the portrait of an English gentleman, were accepted as truthful by the mass of his trans-Atlantic readers. His example was followed by a host of less popular authors among his countrymen, who had either never visited this country or whose knowledge of it was limited to a few weeks' visit to the city of New York and a trip to Niagara Falls. His latest disciples in this species of elegant literature, are two English story-writers, named Besant and Rice, who seem to be engaged in spicing the same stale meats for the palate of their countrymen. They have recently portrayed, as a candidate for a seat in the British House of Peers, a filthy, ignorant and otherwise disgusting fictitious character, whose native place they fix in "Canaan City, New Hampshire." This spectacle of an American citizen with the dress and manners of a "yahoo" seems to have unfailing attractions for the British public.

But the latest posture of the refined and educated among the English people is, as regards this country and its inhabitants, one in which animosity, ridicule and contempt seem to have given place to criticism. Decidedly this is more gracious and promising. For the reasons which lie at the basis of the change, we have not to go far nor search deeply. We are growing rich and strong. Nowhere in the world are wealth and power more worshiped than in that very "tight little isle." As a result, in place of their shot and in lieu of their sneers, we are tendered—advice!

Among the more recent of the English critics who have visited these shores, and certainly among the most distinguished, is Mr. Herbert Spencer. Here is a man pre-eminently honored among his contemporaries on both sides of the water for his profound learning, his literary acquirements and his philosophical writings. The latter will remain a monument to his intellectual greatness when half the books written in the nineteenth century are quite buried in oblivion. Naturally we listen to what he says of us with great respect and attention. His words are reproduced in the daily journals; and we notice also that some of the medical periodicals have made extracts from his farewell address.

We confess that, as we weigh him carefully, we can do no more than set down the distinguished speaker in the long list of English critics of American life and manners who have spoken with the most imperfect knowledge of their theme. Mr. Spencer has made the conventional trip, and done the conventional thing. He too made his hasty visit to a few of the Eastern cities, visited Niagara Falls, and made the usual diversion from the platitudes of an after-dinner speech to tell us, just before re-crossing the Atlantic, how very fearful he was of our future! Were this merely a political future, the subject might be relegated to the political press; but it is our physical future which distresses Mr. Spencer. He describes "degenerative tendencies in American life;" "extreme persistent activity;" "early turning gray of the hair;" "nervous collapses;" "cripplings by overwork;" "serious physical mischief;" "damaged constitutions;" "injury to pos-
[redacted]." and a great deal more of the same sort.

[redacted]ll this is, in the main, true of the people whom Mr.

Spencer happened to meet here; but it is none the less true of the people whom we meet in all the busy centers of civilization, London, New York, Chicago, Paris, Philadelphia. These are the bitter fruits of intense competition, overcrowding and avarice: the stress and strain of the struggle for existence among a mighty multitude of eager men. If he meant it to be inferred that this was, on the whole, more conspicuous in America than in England, the distinguished speaker was certainly in error. For every one illustration of this "degenerative tendency" he can find in the United States, we will point him to ten in his own country. For every type of nervous collapse he can point out in this people, we can refer him to a dozen whose histories are recorded in the writings of his own countrymen. What he says is not new to any of us here It has been told us in fully as elegant English as Mr. Spencer's, by American physicians, more particularly by neurologists. The representatives of our profession in Great Britain have none the less preached the same story again and again to their own brethren on the other side of the Atlantic.

The picture, indeed, presented us by Mr. Herbert Spencer in his late attitude, is not without its ludicrous and even absurd aspect. Think of it! Here is a man telling us that we are working too hard, and as a consequence physically degenerating, while the country, from which he comes to say it, has in it more overworked children and women, to say nothing of men, than any other on the face of the earth; a country whose nobles are to-day assassinated by Irish serfs, in the sheer desperation induced by the prospect of starvation; a country in some of whose populous districts there is such squalor and destitution as have aroused, even in the last twelvemonth, the utmost pity and sympathy of our reading public; a country, the misery, wretchedness and poverty of whose laboring classes have been by none more eloquently and graphically described than by English authors themselves.

This is the land which sent over to us the dolorous "Song of the Shirt," and Mrs. Elizabeth Barrett Browning's pitiful wail, called the "Cry of the Children!" This is the England from which our philosopher travels to tell us that we are losing our

hair and physically degenerating, because we are working too hard!

One year ago, two members of the British House of Commons passed through Chicago. They had been visiting every part of the United States, its wheat fields, its cities, its prairies, its deserts and its mountains. They came to study and to learn; and they did their work well. They came in order to advise others intelligently with reference to investments in American farm lands. While here, they, too, were invited to a banquet by a number of cultivated gentlemen in this city. One of these two members of the British Parliament had visited America twenty years before, and was enabled thus to compare its present with its former condition. In response to a toast, he said:

"A great deal has been foolishly spoken and written on the subject of physical degeneration among Americans. I do not believe in a word of it! I have seen your people in every part of your land, and have found them in no respect physically inferior to those of any part of Great Britain. How could it be otherwise? We are amazed at your growth, your immense resources, your material accumulation of everything that can conduce to man's physical welfare. We have compared the students in your colleges and universities with our own at Oxford and at Cambridge, and we find them equal in bodily vigor and powers of endurance. The improvement in your physical type during the last twenty years, has been one of the most conspicuous and interesting of the many facts we have noted since we have been here among you. I am looking at this moment into he faces of say, one hundred gentlemen of your great city. In physical vigor, in all the outward evidences of good health and maturity of bodily development, they are certainly the equal of the next hundred guests I shall meet at a dinner-table in Great Britain. No, gentlemen, it is not the physical, it is the mental, the moral, the political future of your country, which ought to awaken your anxieties—the struggle which you are yet to witness between capital and labor, the contest between, on the one
e brute forces which your material wealth has brought
nce; and, on the other, the conservative energies of

law, economical industry, and intellect, whose ultimate supremacy you will have, at all hazards, to secure."

So it appears that even our English critics are not all of one way of thinking.

If there be any timorous Americans, physicians or laymen, who, listening to Mr. Herbert Spencer's remarks on the eve of his departure for Europe, were thereby inclined to be, with him, fearful for the physical future of our people, let them take heart of grace! What Mr. Spencer does not know about this country, would fill many more volumes than those which he has himself already written. His assumption that a few New York gentlemen, whose hair had become prematurely gray in their anxieties over the Stock Exchange, were the whole American people, is only one of many British blunders. What folly to presume that the average man will suffer physical degeneration, in a land which has steadily advanced in the task of feeding the other nations of the world! Fortunately the great mass of the citizens of the United States, live outside the large cities. They are surrounded by unparalleled resources for physical development, and are profiting thereby to the largest extent. Their markets are unrivalled: their food. more wholesome, more abundant and cheaper than that of any other nation under the face of heaven. They are better clothed, day and night; tread on more carpets; sleep on more comfortable beds; warm themselves by more ample artificial heat-sources; and have more leisure, as the result of employing labor-saving machinery, than the people of any civilized or uncivilized race on the earth. They could [illegible] Mr. Spencer a locomotive engine, flying as straight [illegible] through consecutive hundreds of miles of waving [illegible] eight full ears, and none measuring less [illegible] They could have pointed out to him [illegible] hills, of which, after eating generously [illegible] to his countrymen enough to make [illegible] the British laborer. Right here [illegible] could have introduced him last week [illegible] moths," where every guest weighed [illegible] hundred and sixty pounds before taking [illegible] board.

We have not the slightest fear for the physical future of the average American; and we trust that Mr. Spencer and his fellow-critics may not be overburdened with their anxieties on this score. Nor have we space in which to mention by name the well-known gentlemen in public life who were or are superb examples of what this country has developed as types of manly excellence. The late President Garfield was a noble example of physical vigor; and his successor in office is certainly not lacking in avoirdupois. In the ranks of the United States Army, we remember the form of the gallant and lamented Custer, and the figures of Hancock and Augur; of the Hon. David Davis, of Illinois, and of the Hon. James G. Blaine, of Maine, in the the senate; the grand figure of the late chief-justice of the United States; and hosts of others in all the professions and occupations of life.

In our wars with the English people, we were not destroyed. Responding, later, to their contempt and sneers, we taught them telegraphy, and the use of the cylinder press and of a thousand other inventions which, by saving labor, have given them and us the greater leisure for physical development and culture. Let it be set down as a fact, that we shall not only survive their criticisms, but also disappoint their fears. Mr. Spencer complains that we do not grumble enough; and we shall establish the truth of this criticism at least, by refusing to grumble at him or his countrymen for their behavior, past and present toward us. We are great enough and strong enough to respond by simply laughing good-naturedly at him and them.

We publish in this number of the JOURNAL AND EXAMINER, the valuable and instructive paper by Dr. H. D. Schmidt, of New Orleans, to which we have heretofore directed attention by an editorial announcement. The publication of this essay has been awaited with no little impatience, not only in this city, but in the country. The daily press of New Orleans perceive the important character of the paper, and have attracted public attention to

his labors at an early date, and in a way that has given them a wide and deserved publicity. Not a few medical periodicals have given notice of the same announcement.

We can at this point be content to leave our readers to draw their own conclusions as to the essential facts involved; but it is difficult to believe that an issue as important as this will be permitted to rest here. In the next number of the JOURNAL, for example, we expect to publish a supplementary report upon these observations, with an illustrative drawing, by the same author. In this additional paper will be found a record of facts corroborating the views which are set forth in the essay now published, as also a more complete exposition of the method of artificially producing fat-crystals indistinguishable from the so-called bacillus tuberculosis.

We desire to attract to these investigations the attention which they deserve, having in view the end solely sought by the distinguished author, viz., the establishment of assured fact.

SUGGESTIVE.—Farmers in various portions of the world have applied pedigree selection to plants and found that after a few years seventy-two bushels of superior wheat could be produced on one acre. The same is being tried for cotton in India. Medicinal plants, like the rose, the castor oil plant, the cinchona tree, ought to receive particular attention in that direction, selecting from the plants which yield the most efficient oils, alkaloids, etc.

THE Faculty of Medicine of the University of Sidney, include in their curriculum lectures on zoölogy, botany, and comparative anatomy. The course is of five years. Biology is included among the preliminary studies required to enter the medical department of the New Zealand University.—(From the *Australasian Medical Gazette.*) This is another section of the world shut to the American medical practitioner.

Selections.

DEFLECTION OF THE SEPTUM NARIUM.* By E. FLETCHER INGALS, M.D., Professor of Diseases of the Throat and Chest, Woman's Medical College; Lecturer on Diseases of the Chest and Laryngology, Rush Medical College, Chicago.

Deflection of the nasal septum consists of a bending to one side either of the cartilaginous or bony septum, or of both. It is characterized by more or less obstruction of the naris and deformity of the nose. A slight degree of deflection is very common; indeed, it is so often found that it is not considered a pathological condition; but a degree of distortion sufficient to materially interfere with respiration, and to cause more or less deformity of the nose, is frequently met with. It is to these latter cases that I wish to direct attention.

For the sake of convenience in description, I will divide the cases into four classes: 1. Those in which there is slight bending of the whole septum. 2. Those in which there is bending of the septum, and more or less depression of the nose, due to injury. 3. Those in which there is local flexion, near the nostril, of the cartilage only. 4. Those in which a ridge of considerable size runs upward and backward, from near the nostril, along the line of articulation of the vomer with the cartilage, which ridge is formed mostly of bent cartilage, but partly of the bent vomer.

Judging from my own observation, the affection usually occurs in early life, either before or about the age of puberty.

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* Read before the American Laryngological Association, session 1882.
Reprinted from the Archives of Laryngology, Vol. III, No. 4, Oct. 1882.

This deflection may be of traumatic origin, but usually it appears to be spontaneous. Some patients attribute it to an accident; such, for example, as being thrown from a horse, or falling upon the ice; but in the majority of cases no cause is assigned, or the one given does not satisfactorily account for the condition. In searching for the cause of this affection, we usually find that the patient has been troubled with catarrhal symptoms for some time before obstructed respiration has been noticed, and this is the only symptom which is found with any degree of uniformity in the early history of these cases. Again, in many persons who are affected with chronic coryza, we find considerable distortion of the septum, particularly of its cartilaginous portion. Both of these facts point to inflammation of the nasal mucous membrane as one of the principal factors in the production of the deformity.

I have had no opportunity to observe post-mortem appearances, but from a study of clinical cases, and from the examination of numerous skulls, I am convinced that the affection of the septum usually commences in the cartilaginous portion, and that the flexion of the vomer, which often exists, is of mechanical origin, due to firm articulation of this bone with the cartilage.

We must bear in mind that we have a vertical septum, resting upon an unyielding base, and held firmly down by the nasal bones and soft tissues of the nose, therefore no addition can be made to its edges without causing flexion. In cases of spontaneous origin, the principal changes appear to have been in the edges of the cartilage, increased growth from which has caused it to bend upon itself; but in some cases there is also considerable thickening of the septum.

The process, I believe, generally depends upon congestion of the overlying mucous membrane, but its exact nature has not been determined. It is probably a simple hyperplasia of the cartilaginous cells, due to hypernutrition; but it may possibly be of the nature of rachitis, the pathology of which is obscure.

Sir W. Jenner* says the alterations in the bones in rachitis consist in an increased preparation for calcification, but an incomplete performance of the process.

* "Green's Pathology and Diseases."

P. Henry Green * states that the zone of cartilaginous tissue which in health is being transformed into bone is very thin, but in rachitis it is greatly increased, particularly at the ends of the bones, but also beneath the periosteum.

It would seem, therefore, that at least one step in the development of rachitis consists in an abnormal growth of cartilage, and it is possible that the same conditions operate to enlarge the cartilaginous septum that causes the increase in rachitis. However, if we accept the theory that rachitis is due to checking of nutrition, it would appear inappropriate to class deflections of the septum as one of the manifestations of this disease; for in patients in whom deflection is observed, there is seldom any evidence of imperfect nutrition, and thus far I have not seen one presenting other signs of rachitis.

Patients with deflection of the septum generally apply for relief, because of obstructed respiration or deformity of the nose. But we usually find, also, that there is excessive secretion from the nasal mucous membrane, most of which passes behind the velum into the throat. We also observe that the voice has something of a nasal twang, but the progress of the flexion has usually been so gradual that the patient himself does not appreciate the change.

When distortion of the septum is extreme, the point of the nose is often pushed to the opposite side, so as to cause considerable deformity, especially in ladies. I have found this deformity so often, that I am led to think that in a majority of cases, a crooked nose is the direct result of enlargement and deflection of the septum.

Upon inspecting the naris on one side, we find a free space, with more or less concavity of the septum, along which a narrow furrow will often be seen, corresponding to the line of greatest flexure. In the opposite naris we find convexity of the septum, varying in extent and position in different patients, but always greater than would at first be expected from examination of the larger naris.

Contrary to the experience of others, I have observe this convexity most frequently on the right side.

* Ibid.

In the first class of cases, there is a uniform concavity of one side, with a corresponding convexity of the other.

In the second class, the deformity depends upon the severity of the injury, and may consist of simple depression and bending of the septum, or of this conjoined with fracture of the nasal bones.

In the third class, there may be only a slight flexion of the cartilage, near the nostril, both the anterior and posterior extremities of which may be easily seen; but in many instances the bent septum passes obliquely downward, from its natural position above, to the ala, and then bends sharply upon itself, so as to lie almost horizontally across the nostril. In this form of distortion, the nostril is often found to be completely closed, and the point of the nose is crowded considerably to the opposite side. In such cases, thorough inspection may be impossible, but by drawing the ala well outward, we may usually obtain a view of the deeper parts of the naris.

In the fourth class, the deformity usually commences at the middle or upper third of the septum, and passes from that point outward and downward, nearly to the floor of the naris. It then bends sharply upon itself, forming a longitudinal ridge, which stands out from the normal plane from three to eight millimeters. The ridge thus formed generally passes obliquely upward and backward, a distance of two or three centimeters, in a line corresponding to the articulation of the vomer with the cartilage and nasal plate of the ethmoid.

The most prominent part of the flexure is usually found about two millimeters below the normal position of the junction of the nasal cartilage with the vomer. In these cases, though upon first inspection the inferior plane of the bent septum appears to rest upon the floor of the nasal cavity, it will generally be found that a space remains beneath it sufficient to allow the passage of a probe two or three millimeters in diameter.

There can be no difficulty in the examination of both nostrils are inspected, by

the extent of the inflexion

the cartilage in front ha

In cases of spontaneous

for a limited, though uncertain time, but probably, in most cases, for at least two years. It finally comes to a standstill, and there seems no tendency to recurrence of the active increase in the size of the cartilage, neither is there likely to be any atrophy of it; but the deformity, unless relieved by an operation, will continue through life.

In traumatic cases, considerable flexion results immediately from the injury, but, judging from the extent of distortion in cases of this variety which have fallen under my observation, the injury is usually followed by considerable hypertrophy, and subsequent bending of the cartilage.

Several operations have been recommended for the relief of this condition. The most important are, the one recommended by S. D. Gross, which I believe is the same as that proposed by Chassaignac, which consists in paring off a portion of the bent septum; the operation proposed by Wm. Adams, for forcible replacement of the bent and depressed septum; and Goodwillie's operation for perforating the septum.

Several modifications have been made in each of these operations, which have better adapted them to special cases.

In the first class of cases, often no operation is necessary, though perforation by Steel's instrument, or Adam's operation, would probably correct the deformity, yet, even in these, I should prefer the removal of a slender triangular piece from the lower margin of the septum.

In the second class of cases, Adam's operation,* or the operation suggested by Dr. A. J. Steel, of St. Louis, and subsequently practiced by Dr. Glasgow,† seems most likely to be followed by favorable results, especially if there is no enlargement of the cartilage, in which case, if replaced, it is of exactly the proper dimensions to restore the nose to its former shape.

In the third and fourth classes, where there is an increased growth of cartilage, no operation is likely to be permanently successful which does not include the removal of the redundant tissue.

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* Journal, Oct. 2, 1875.

† Medicine, 1879; also, Transactions of Am. Laryngological Association,

Simple perforation of the septum is not sufficient in these cases, for, although it will doubtless partially relieve the difficulty in respiration, by allowing air to pass from the obstructed nostril through the enlarged naris, it will not correct the deformity of the nose. It will not usually cure the obstruction in the back part of the occluded naris, and therefore it cannot cure the catarrhal symptoms; besides, as suggested at the last meeting by Dr. Glasgow, there is a tendency to scabbing of the edges of the perforation, and deformity of the nose is liable to result from removal of large portions of the septum.

Paring off portions of the septum will answer the purpose in some cases, but it is only suitable for a small number. By this operation, a thin septum would be left of the original size, and of insufficient strength to support the nose. Such a septum would be peculiarly liable to further distortion: consequently, in many cases, the operation would not only fail to correct the twisting of the nose, but it would favor subsequent depression of the external parts. The operation suggested by Dr. Jarvis I have not tried, and as it is to be fully discussed in the next paper, I will not comment upon it.

In all cases where the cartilage is much enlarged, the operation which seems to me most suitable, and which I have on two occasions found very satisfactory, consists in separating the mucous membrane and removing the redundant tissue, after which the mucous membrane is stitched down, and the septum retained in proper position until firm union has taken place.

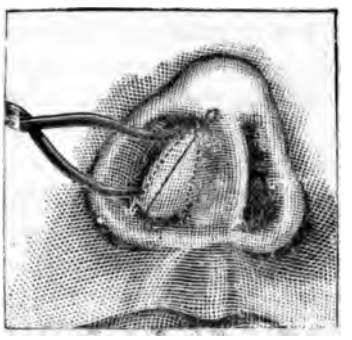
The operation will sometimes require considerable time, and therefore in most instances an anæsthetic will be necessary.

Ether or chloroform may be employed, but nitrous oxide is preferable for short operations, such, for example, as that to be recommended for cases of the fourth class.

Before commencing the operation, when possible, a small Eustachian catheter should be carried through the obstructed nostril to the pharynx, and through it a catgut or a well-waxed silk ligature should be passed, for tamponing the posterior naris. This ligature should be attached to a suitable tampon of cotton or sponge, and tied in such a manner that about two inches of the end of the ligature may hang down the pharynx when the

tampon has been placed in position. This hanging end will greatly facilitate the removal of the tampon after the operation. It is usually best to introduce the tampon before the anæsthetic is administered.

When the bent septum lies nearly horizontally across the nostril, the mucous membrane over the septum should be incised from above downward and outward, near the center of the nostril, as indicated by the line *a d* in drawing, and then, with the handle



of a scalpel. or with delicate curved spuds, the membrane should be separated from all that portion of the septum which is to be removed.

Estimating carefully the amount of tissue which it will be necessary to resect in order to secure symmetry of the nose and a straight septum, the cartilage should now be cut through from the upper to the lower outer angle of the obstructing portion *a b*, as indicated by the dotted lines in the drawing, and then along the inner border from above downward, *a c*. With a little care, this incision can be made without cutting through the mucous membrane in the opposite naris. The cartilage may now be seized with forceps by the angle (*a*) and drawn downward and cut off. If the flexion extends backward along the septum, a slender triangular piece must also be removed from its lower border by means of scissors, a knife, or a short cutting hook.

The incisions should be so planned that when the septum is pushed into its normal position, the cut edges of the cartilage will be in apposition. The mucous membrane is now drawn down and stitched, thus holding the cartilage in proper position;

but it must also be supported by a plug, or by a pledget of cotton, until firm union has taken place. I have used cotton for this purpose, but the plugs recommended by Adams and Glasgow might possibly answer a better purpose. After a few days, a tubular instrument of similar form would probably be more comfortable.

The twisting of the end of the nose will be found to have been remedied by replacing the cartilage, and if proper care is exercised to keep the septum in position, until union is firm, a perfect result may be confidently predicted. I have not made the experiment, but I think the after-treatment would be more easily carried out if the cartilage were either broken or incised at its upper part, so as to destroy its resiliency, and thus require less pressure to hold it in its normal position.

In addition to the anterior obstruction, a large ridge sometimes runs upward and backward a distance of two or three centimeters, as in the fourth class; this may be removed at once, or a second operation may be made.

In the fourth class, not only the cartilage, but usually the upper border of the vomer also, is bent; were it not for this, the operation might be readily performed by separating the mucous membrane, and then paring off the cartilage with a slender probe-pointed knife. On account of the bony tissue which has to be cut through, a slender saw will be found useful in operating on these cases. I have used a slender metacarpal saw, but I am now having made a much smaller instrument, which may be worked either by hand or by a dental engine, and which will, I think, materially facilitate the operation, and possibly render an anæsthetic unnecessary in cases of this class.

In these cases, the mucous membrane should be divided perpendicularly at the anterior extremity of the ridge, so as to allow the introduction of a spud; also along the lower angle of the deflected cartilage, at a point which will insure enough tissue to cover the cut surface of the septum. The membrane having been separated from the septum, the saw is carried beneath the projecting portion, close to the ridge of the maxillary bone, and the cut is made directly upward until the bone and cartilage are divided. The piece being removed, the mucous membrane falls

down upon the cut surface, and may be stitched at its anterior extremity to the membrane covering the crest of the maxillary bone.

It is not often necessary to bend the septum after this operation, but if the flexion at its upper part is very great, it is advisable to restore it to its normal position, as after the operation for cases of the third class.

P. S. Since the above was printed, I have operated on a case twenty years of age, in which the bending of the septum was so great as to obstruct both nostrils. The deformity was first noticed during infancy.

The patient made a good recovery, and the deformity of the nose was much benefited, though, on account of the bending of the nasal bones, it could not be entirely corrected without a fracture of the latter, which was not deemed best. The obstruction of the naris was perfectly relieved, and the patient's general health improved. E. F. I.

STATE BOARD OF HEALTH OF WEST VIRGINIA.

The following circular, received from the Secretary of the Board, will give our readers a fair knowledge of the scope and practical working of the recently enacted laws of West Virginia in relation to the Public Health and Medical Practice. ED.

OFFICE OF THE STATE BOARD OF HEALTH.
WHEELING, September, 1882.

TO LOCAL BOARDS OF HEALTH, PHYSICIANS AND OTHERS INTERESTED IN SANITARY SCIENCE.

Gentlemen: The law establishing a State Board of Health and regulating the Practice of Medicine and Surgery, passed March 8, 1881, and amended and re-enacted March 15, 1882, is now in full force and effect in every county of the State, and the earnest co-operation of all persons asked who desire that human suffering shall be alleviated, the death-rate diminished, and the sanitary conditions of our State improved. Without such hearty co-operation, especially on the part of local boards of

health and the members of the medical profession generally, the law, however wise in its provisions, must fail utterly in conferring upon the whole people of West Virginia the humane and priceless benefits contemplated by its passage.

All who engage in the study of local conditions affecting the public health—the influence of soil, climate, water and food supplies, drainage and sewerage; the influence of race, population and social conditions; or who watch the invasion of contagious and infectious diseases to discover the agencies or causes which produce and maintain them, and devise the proper methods for their control; who assist in collecting reliable vital statistics and in any wise employ their energies to systematize and perfect the grand work intrusted to those in charge of the public health—are public benefactors.

It is an encouraging sign of the times that so much attention is now being paid by lawgivers to the prevention of disease. The art of the physician can do much in curing disease in detail, but the power of a State legislature, if well directed, may do infinitely more in adopting and enforcing measures to check, if not wholly prevent, the development of a large class of very serious maladies.

During the last century, statistical researches have developed two extremely important facts, namely, that the mean duration of human life is generally less than half that of the three score and ten years commonly allotted as the term of man's existence, but that, on the other hand, communities have it, to a certain degree, in their power to diminish the causes by which the lives of their members are thus abridged; and it has been made evident that, in consequence of the judicious employment of that power, the average duration of human life has been for many years slowly but progressively on the increase.

Stimulated by the activeness of sanitarians the public mind is becoming more and more enlightened as to the connection of *filth* and *disease;* and it is the duty of local boards of health to busy themselves to the end that such knowledge shall pervade and influence every household in the State.

THE APPOINTMENT OF LOCAL BOARDS AND THEIR DUTIES.

By reference to sections 6 and 7 of the amended act of 1882, it will be seen that local or county boards have a wide and responsible field of duties.

The manner of appointing local boards under the law of 1882 precisely reverses the method prescribed in the act of 1881. Now it is simply the duty of the county court to nominate for each county "three intelligent and discrete persons residing therein, one of whom, at least, shall be a person legally qualified to practice medicine," and the State Board may or may not confirm the nominations so made by the court. In the event of non concurrence by the State Board, it is the duty of the court to name other persons for the office, and so continue to nominate until the State Board shall accept and appoint. In covering the State with local boards of health, there has been no serious conflict of authority in the matter of appointments except in a single instance; and this speaks well of the favor with which the passage of the law was received, and the pleasure of county courts in putting into effect the most useful arm of its power.

Persons appointed on local or county boards of health hold their office for the term of two years, unless sooner removed by the State Board. As soon as possible after their appointment, the board shall meet for organization—the member first named on the list of appointments making the call—and elect from their number a presiding officer as prescribed in section 6 of the act. The county board thus organized "shall make and establish for the county, or for any place or district therein, such sanitary rules and regulations as may be deemed necessary and proper by the said board to prevent the outbreak and spread of infectious or contagious diseases."

"The local board of any county may declare quarantine therein, or in any particular district or place therein, against the introduction of any contagious or infectious disease prevailing in any other State, county or place, and of any and all persons and things likely to spread such contagion or infection." But "as soon as such quarantine is established, the local board shall, in writing, inform the members of the State Board residing in that

congressional district, whose duty it shall be to ascertain the necessity of such local quarantine and take action accordingly."

In the matter of expenditures of money necessary for local and county sanitation, and of all bills incurred by local boards of health, their agents or appointees, while in the performance of official duty, the pleasure of the county court must be consulted. "In cases of emergency, or of actual necessity, and when the court or corporate authorities are from any cause unable to meet or to provide for the emergency or necessity of the case, all actual expenditures shall be certified by the local board to the county court, and the whole or as much thereof as the said court may deem right and proper, shall be paid out of the county treasury." It is plain, therefore, that the most intimate and reciprocal relations should exist and be cultivated between county courts and local boards of health in order that there shall be no lack of energy in the performance of sanitary work, on the one hand, nor liberality in the payment of just bills for service rendered, on the other. A careful study of sections 6 and 7 of the amended act will show direction for every duty to be performed by local boards.

THE DUTY OF PHYSICIANS.

The law makes it the plain duty of every practicing physician to report promptly to the presiding officer of the local board of his county all cases of cholera, small-pox, scarlet fever, diphtheria, enteric or typhoid fever, whooping cough, measles or other endemic, epidemic, infectious or contagious diseases of dangerous character, under treatment by him. To encourage and facilitate a full and prompt report by physicians, cards in blank will be distributed to them through local boards. In this way the duty of making report will be made easy, and the most thorough sanitary police of the State secured. The result of this required labor of physicians will soon be seen in reports compiled therefrom by local boards whose duty it shall be report to to the State Board of Health "once, at least in every three months, the character of all such infectious, contagious, endemic or epidemic diseases; the number of persons reported as affected with either of said diseases, naming the same; the action taken

by the local board to arrest the progress of every such disease, and the visible effects (if any) of such action."

"Where any city, town or village has a board of health of its own, the jurisdiction of the local or county board shall not extend thereto, but such city, town or village board shall be auxiliary to and act in harmony with the State Board of Health."

THE PRACTICE OF MEDICINE.

It is remarkable and worth telling that the State Board of Health has had trouble in but *three* cases among the thousand and sixty applicants for medical certificate. Indeed, nothing could work more smoothly than that part of the machinery of the law regulating the practice of medicine and surgery, for it has the hearty support of every respectable physician in the State, and all are proud of our rising professional standard.

The new manner of dealing with itinerant physicians has not only put several hundred dollars into the State treasury, but prevented the incursions of a class of ignorant pretenders who, previous to the passage of the law, regularly occupied West Virginia to humbug credulous people.

It is the duty of every legally qualified physician to keep close watch for all violations of the law, and when offenses are discovered, to report them promptly to the prosecuting attorney or to a justice of the peace.

Section 14 makes it the duty of the sheriff to collect the "special tax of $50 for each month and fraction of a month" from all *itinerant physicians*, of whatever name or character, "who shall travel from place to place, and by writing, printing or otherwise, publicly profess to cure or treat diseases, injuries or deformities." Any person is regarded as practicing medicine within the meaning of the law "who shall publicly profess to be a physician, and to prescribe for the sick, or who shall append to his name the letters 'M. D.'"

The act also applies "to druggists and pharmacists who prescribe for the sick," and should be enforced against such offenders to the letter. Frequent complaints have reached the State Board of violations of the law by druggists and pharmacists, and there is good reason to believe that such offenses, though not as common

as before the passage of the law, are yet of frequent occurrence in many of our large towns. By all proper means, such offenders should be discovered, and the information given to the prosecuting attorney or a justice of the peace.

Finally: The law requires that all persons engaged in the practice of medicine and surgery in West Virginia shall have a certificate from the State Board of Health. There are three classes of certificates: 1st, the diploma class; 2nd, the ten years' experience class; 3d, the examination class. "Itinerant physicians" must possess the qualification of one or the other of these classes before offering to engage in general practice or to prosecute a specialty; and unless they first so provide themselves with a medical certificate from the State Board they become offenders in a *double sense* and liable to the severest penalties of the law.

Should the registration of any person engaged in the practice of medicine be questioned, or doubtful, specific information may be had by addressing the office of the secretary of the State Board of Health, giving the name in full, as well as the residence of the supposed offender.

THE STATE BOARD WILL CO-OPERATE WITH THE LOCAL BOARDS OF HEALTH.

☞ By immediately answering all communications from local boards.

By sending brief suggestions to meet any emergency, or when the public health is endangered from any cause.

By telegraphing and writing to local authorities to secure the best means of protection; or by visiting in person the county, district, or place, for the purpose of instituting and enforcing rules for the suppression of infectious or contagious diseases prevailing therein.

By supplying all needful forms for reports by physicians, and giving such information to local authorities as shall be necessary for the protection of the public health.

☞ THE STATE BOARD advises that every local or county board be prepared against small-pox, by urging all school boards to prohibit the attendance of un-vaccinated children; by an

agreement with all physicians to vaccinate every unprotected person in each household where they attend: by instructions to all health officers and agents or officers of local boards to ascertain who in each community are unvaccinated and exposed to small-pox; by notifying the secretary of the State Board of Health without delay when small-pox appears; by writing or telegraphing the situation of the case or cases; and by requiring prompt compliance with all orders issued either by the local or State Board for the control of disease.

The State Board urges upon local or county boards the importance and necessity of a prompt and careful distribution of the blank cards sent from this office for the use of physicians in making reports of all infectious, contagious, endemic or epidemic diseases under treatment by them, in obedience to section 6 of the amended act. Complete lists of the registered physicians of any county will be furnished on application to the Secretary of the State Board; and local boards should regard it one of their special duties to require of all physicians complete returns according to law.

The accompanying postal card, addressed to the Secretary of the State Board, is for the acknowledgement of the receipt of this circular and other documents sent with it. On it should also be returned the name in full and post-office address of each member of the local or county board of health, not omitting to distinguish the presiding officer, and the secretary, if there be such officer. The postal card should be returned promptly, in order that the record of local boards shall be correct in every particular.

Trusting that this circular may serve to increase the confidence of the medical profession in the State Board, and lead to reforms that shall advance the cause of the public health in West Virginia, I am, Your obedient servant,

JAMES E. REEVES, M. D.,
Secretary State Board of Health.

MEMBERS OF THE STATE BOARD OF HEALTH.

Geo. B. Moffett, M.D., President, Parkersburg; James E. Reeves, M.D., Secretary, Wheeling: C. T. Richardson, M.D.,

Charlestown, Jefferson County; Geo. H. Carpenter, M.D., Moorefield, Hardy County; Hon. A. R. Barbee, M.D., Point Pleasant; Gabriel McDonald, M.D., Union, Monroe County; Lawrence Carr, M.D., Charleston, Kanawha County; Wm. M. Late, M.D., Bridgeport, Harrison County.

GLYCOSURIA. By OSCAR C. DEWOLF, A.M., M.D., Professor of State Medicine and Public Hygiene in Chicago Medical College.

It requires but little reflection etymologically, to justify a preference for the word glycosuria in naming the disease upon which Aretæus first wrote as diabetes, in ignorance of the saccharine and non-saccharine conditions existing in what are now known to be widely different diseases. Though diabetes mellitus has been used to designate the constant, and glycosuria the temporary occurrence of sugar in the urine, the absurdity of any such distinction is too apparent. It is safe to predict that the terms chronic and temporary glycosuria will take the place of the older but inexact names mellituria, etc. *Zuckerharnruhr* is an expressive German equivalent.

The literature of the subject is in a scattered and generally inconclusive state, though this is not peculiar to articles upon any one disease. The best work accomplished in an investigation of glycosuria is that by the late Claude Bernard.* With this physiologist's conclusions (familiar to all as the glycogen and glucose theory) as a *datum plane*, to use an engineering term, thousands of "contributions," good, bad, and useless, have been presented to the medical reader. A glance at the seven pages of bibliography by Senator,† and through the pages of the American *Index Medicus*, suffices to discourage any other than the sciolistic student, whose sole object is to *appear* to know. One of the *Esse Quam Videri* genus would soon learn that the literature of the

* Claude Bernard, Mémoires de la Soc. de Biologie, 1849, vol. i., p 221. Nouvelles Fonctions du Foie Considérée comme l' Organe Producteur de Matière Sucrée. Paris, 1853.

† Senator, Ziems en's Cyclopædia, vol. xvi., pp. 851—858.

subject is immensely more voluminous than Senator indicates, and that between compassing it and indulging in original experimentation and investigation an ordinary life-time would not suffice. Doubtless nine tenths of what has been written upon diabetes mellitus is worthless, owing to lack of proper education or surroundings on the part of the writer, or insufficient time to properly analyze cases. The earnest student cannot reform the world; he must take things as they are, and make the best of them. In this endeavor he will be straightway appalled at the polemics indulged in by "authorities," and upon points he imagined were fundamentally established. T. Lauder Brunton* gives a fair review of this aspect of the mellituria question, with the discussions, denials, and controversies between contemporary and other authors and investigators, such as Rollo, Tiedemann, Gmelin, Ambrosiani, Dumas, Bouchardat, Liebig, Bernard, Bouley, Poggiale, Longet, Pavy, Flint, and others. The labors of the ideal physician are presumed to be largely altruistic, but I cannot avoid the conviction that were some such brilliant individuals as Newton, Descartes, Hunter, Huxley, or Tyndall, afflicted with thorough medical educations and glycosuria at the same time (providing the latter impaired their minds and usefulness as little as the former), their egoistic efforts might and in all probability would result in something definite in this direction.

In the midst of distracting public duties the subject of glycosuria has recently occasioned me much concern, and I have attempted its review, the results of which I submit in the shape of conclusions rather than disquisitions and re-presentations of the treatment in text-books accessible to all; not in the spirit of Tom Hood's "Otaheitan cook, who thought no food was fit to eat till he had chewed it," but rather with the *animus* of Chambers, who recognized the impossibility of treating any disease (scientifically) without having a hypothesis as to its nature, and as to the best means of combatting the disorder. Later in the year I hope to be able to communicate to this Journal the result of some clinical observations in the matter of glycosuric treatment.

Chemical text-books, and works on the practice of medicine discuss far more fully than could be done in this essay such matters

* T. Lauder Brunton, Reynold's System of Medicine, vol. iii., p. 35, et seq.

as urine-analysis and the relative quantities of fluid and food ingestion and excretion. In fact, so much space in current print is allotted to a consideration of these threadbare points that only this mention will be made as an excuse for omitting further reference to them.

Naturally enough the disease was in ancient times supposed to be seated in the kidneys. Every tyro in medicine now knows that to Claude Bernard we are indebted for the discovery of the connection between glycosuria and a disarrangement of the liver function. That puncture of a portion of the lower floor of the fourth ventricle will produce sugar in the urine is also well known, better known than that diabetes insipidus has a so-called center in the medulla just above the glycosuric point. Still less known is it that lesions of the sympathetic system below the ventricular point may likewise cause melliturla, and that pathological conditions of the vagi may induce phases of the disorder.*

Glancing over the various accounts of diabetic ætiology, we find that heredity as a predisposing cause, or a factor at all, is debatable. Granting that neuropathic parents have had offspring in whom glycosuria has been developed, the question of heredity then narrows itself to the inquiry whether defects of the nervous organization may not assume different ways of manifestation in offspring just as cachexia does. It is agreed that men are more liable to glycosuria than women, and that it may appear at any age; but until we have more pains-taking statisticians scattered over countries other than those reported from by Griesinger, Seegen, Schmitz, and Dickenson, we may conclude that we have imperfect data from which to make deductions. Trousseau regards corpulence as a predisposing cause, and when we consider the chemical relationship of fat and sugar it is not to be wondered at that retrograde metamorphosis would be as liable to occur as that sugar should form fat by oxidation. Thus obesity might be considered ætiological as well as predisposing. Another view would be that starch or glycogen, instead of undergoing transformation into fat directly or indirectly, by some perversion of function, became glucose instead. So far as I am aware these probabilities have had no consideration anywhere.

* Marcus and Wiet, Le Progrès Méd.cal, No. 21. Proc. Soc. Biol., May, 1881.

Reviewing the neurologial aspect of the disease, there seems to be very much yet to be done in this field. Cyon and Aladoff* figure the course of the vaso-motor nerves of the liver from the base of the brain downward. This can but be hypothetical. Kronecker,† at Leipsic, confines all vaso-motor centers to the floor of the fourth ventricle, but Luys and Jewell‡ suppose that there is a continuous column of such centers for the whole body in the medulla and cord, while Brown-Séquard extends them to cerebellum and brain, and Clevenger‖ agrees with the latter, but goes further in extending them to the entire cerebro-spinal system. Cyon and Aladoff give the glycosuric tract as passing down the spinal cord to some of the communicating branches of the sympathetic, thence through the splanchnic nerves to the liver. Admitting that some such tract undoubtelly exists, the next step is to ascertian how a lesion would operate through it to produce sugar in the liver. The generally accepted view is (from some very notable experiments) that dilatation of the hepatic blood-vessels through vaso-motor paralysis, thus induced, produces engorgement, and that sugar in the urine follows. As to *why* sugar-production follows this interference with liver function much has been written, and doubtless much more will be. Glycosuria has been likewise produced by injuries of the cerebral lobes, cerebellum, optic thalami, and sciatic nerve, according to Schiff, Eckhard, and Pavy, which fact would invalidate the idea of a single tract and the widely noticed ventricular irritation of Bernard as a cause, and account for glucose being somewhat commonly found in the urine of those suffering from any mental or nervous ailment.

Taking these things into consideration, we may well wonder whether the transfer of the disease from the kidneys to the liver as a seat is more than a step toward a clearer, broader view of both the disease and bodily functions in general. Brunton thinks "we are justified in believing that the sugar which is present in the blood, becomes converted by the aid of a ferment in the blood muscles, and probably lungs, also, into lactic acid and glycerine,

* Cyon and Aladoff, Bulletin de l'Acad. de Petersbourg, vol. viii.

† Vulpian, Rev. Scient., 1874, No. 35.

‡ Journal of Nervous and Mental Disease, vol. i., p. 116.

‖ Op. cit., October, 1880.

and then undergoes combustion, thus sustaining the temperature of the body. Supposing, however, that this ferment is deficient, a greater or less proportion of the sugar will not undergo conversion into acid, and will then remain unconsumed." The temptation to be discursive and polemical at this point is very great but I prefer to present deductions which I have made while referring to some recent articles bearing more or less directly upon the neurology of the subject.* Bernard himself enlarged upon his original views, and in a communication to the Academy of Sciences January 10, 1876, reported in the *Revue Scientifique*, summarizes the principal points elicited, which seem to have been overlooked by many who have written upon glycosuria. It affords a good *résumé* of our present knowledge of the subject and is worth reproducing here:

"Animal blood always contains sugar. This glycæmia depends on a normal function of the liver. These facts were established by Bernard and those succeeding him. The physiological production of sugar in the liver is subject to the influence of the nervous system, and by wounding a particular point in the fourth ventricle not far from the origin of the vagi nerves, the sugar is developed superabundantly, rendering the animal rapidly diabetic; from this arose the theory of the glycogenic function of the liver. This function only becomes developed at a certain period of intra-uterine life, but sugar is none the less lacking in the organism undergoing evolution. Sugar exists in the allantoid and amniotic liquids and in the urine, and diabetes is, after a fashion, the normal condition of the fœtus. Bernard from this regards glycogenesis as a general physiological phenomenon, *accompanying all the manifestations of life in animals and plants.* Later, the discovery of the glycogenic matter to some extent changes the face

* Painful Symmetrical Neuralgia in Diabetes, Sciatic and Dental. *Le Progrès Médical.* M. J Worms, Session Paris acad. Med., September 10, 1880. Lesions of the Brain in Diabetes, Stevens' Triennial Prize, January 1, 1882 (to be awarded March, 1882, at the annual commencement of the New York College of Physicians and Surgeons). Changes of the Sympathetic in Diabetes, Poniklo. *London Lancet*, May, 1878. Influence of the Nervous System on the Formation of Sugar, M. Laffont, *Progrès Médical*, No. 10, 1880. Glucose Tests, *Science* (New York), December 24, 1881, p. 616. The Dynamo-Chemical Theory of Diabetic Glycæmia, M. Figury, Acad. de Médicine April 10, 1877, Bull. Gen. de Therapeutique. The Teeth in Diabetes, Magitot, *Journal de Médecine de Bordeaux*, January 1, 1882. Clinical Observations of Diabetes Mellitus, New York Academy of Medicine, stated meeting, February 16, 1882 *New York Medical Record*. February 25, 1882.

of the problem in connecting it with one of the most difficult questions of general physiology, that of the intimate nutrition of the tissues. The theories of nutrition have always allotted to the blood the principal part in the chemical changes that take place in the living organism, but M. Bernard has shown that instead of seeking directly in the blood for the substance preceding the sugar and producing it, it is necessary to place it in the hepatic tissue itself."

M. Lancereaux, it seems to me, took a step in the right direction, in announcing two diabetic types, in a paper read before the French Association for the Advancement of Science, August, 1879. Lancereaux claims that there are *fat and lean types*. The first begins insidiously between the ages of twenty and thirty with obesity, death occuring from phlegmon, rarely from pulmonary consumption. The lean cases spring suddenly from a condition of previous good health, and last from one to six years, or more frequently terminate with phthisis pulmonalis which begins with chronic pneumonia. *Destruction of the pancreas* was recognized in two of the "lean" cases examined, and he infers a direct relation between pancreatic destruction and glycosuria, claiming that there are good grounds for a nosological distinction of these two varieties.

While the obese cases may be simply such as Senator considers predisposed, it would be well tos separate all such cases hereafter and see whether there was the uniformity of phenomena mentionen by Lancereaux. Similarly, I fancy, we may be enabled to diagnose the especial lesion and its seat by some such sensible proceeding, instead of contenting ourselves with the bare fact of sugar being constantly found in the urine. A rational system of treatment can thus be inaugurated which will enable us to address ourselves intelligently to *causes* instead of effects. For example, neuropathic cases might find especial benefit from neurotics, while those originating in obesity would derive no advantage from such treatment. All measures adopted in the latter cases should partake of an effort to aid in decreasing fat production and an interesting point in this connection is afforded us by Immermann :*

* Immermann. Corpulence. Ziemssen's Cyclopœdia, xvi., page 647.

"In violent voluntary motions of the body not only will less fat be produced, but, owing to the more energetic process of oxidation in the tissues more ipogenous material will be destroyed." Hence the observations of Bouchardat, Kuelz, and Trousseau, that active muscular movements are capable of lowering the excretions of sugar, have a rational foundation in the presumption that both these hydrocarbonaceous substances, fat and sugar, are burned up in the muscles under proper conditions, and that both are fuels (so to speak) which if allowed to accumulate become pathological and consequently pernicious. On the other hand, the inappropriateness of much exercise for the enfeebled non-obese cases might soon be made apparent by trial.

Although glycosuria does not frequently fall to the care of general practitioners, it has befallen me to have charge of several cases directly and indirectly, naturally awakening a solicitude not to be appeased by our inchoate literature of the subject.

The fact that one half of these cases undoubtedly originated in neuroses of a mental type could not fail to impress me with the conviction that the diabetic center in the floor of the fourth ventricle might have become involved by either an extension of a lesion originating above this point or by direct congestion thereabouts. The patients mentioned are engaged in large manufacturing and mercantile enterprises, and uniformly their glycosuric traubles began after having been subjected to great mental strains. This set me to overhauling the subject, with the results which I hesitatingly submit in condensed from in the shape of conclusions at the end of this article.

Prout was first in calling attention to the phase of glycosuria known as diabetic coma. The later workers in this field (Petters, Sanders, Hamilton, Kussmaul) somewhat uniformly overlook the neurological aspect of the dyspnœa which ushers in the coma. It is very evident that a nerve degeneration which could cause the interference with the liver functions, and thus induce diabetes could as well extend to the pneumogastric centers or fibers, and thus produce the respiratory insufficiency directly through failure of innervation.

Petters urged the acetone poison theory as a cause of the coma,

but Sanders and Hamilton* satisfy us that acetonæmia may exist without the coma. It is sufficiently proven that the blood in these coma cases does evolve acetone, but that it is a factor in the production of dyspnœa seems to have been disproven. Ruppstein† gives an equation illustrating the formation of acetone, alcohol, and sodium hydrogen carbonate from sodium ethyl diacetate. In this decomposition the latter absorbs two molecules of water, which fact is again indicative of the abstraction of the blood serum alluded to in another part of this paper as productive of polydipsia.

Quincke‡ and Steel, cited by Gamgee‖ mention two cases where the coma was transitory, which would disparage the neurological view and lead us to search for a chemical or at least less organic cause.

Something in this direction, not alluded to by others, occurred to me when considering the power possessed by animals to deoxidize saccharine substances in fat conversion. By taking a certain number of molecules of carbonic acid water, and oxygen from glucose, the elements of the ordinary forms of fat are furnished: $20C_6H_{12}O_6$ (sugar) $= 2C_{57}H_{110}O_6$ (stearin) $+ 6CO_2 + 10H_2O + 43O_2$. Quincke, who rejects the acetonæmia theory concludes that the comatose condition is due to a toxic action and not to a suddenly developed nervous lesion. Gamgee calls attention to the remarkably intense fatty infiltration of the liver in two cases in the Royal Infirmary. Hoppe Syler§ states that the proportion of fat increasad greatly in the blood in four cases of diabetes.

Notwithstanding the note that in one of the Infirmary cases the blood did not seem to be particularly venous, I cannot help believing that the liberation of such great quanitities of carbonic anhydride in fat formation was a direct cause of the coma. At least the view is submitted to physiological chemists as worthy of attention. Then, again, the observation of Foster¶ in support of

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* Gamgee, Physiological Chemistry of the Animal Body, vol. i., page 169.

† Centralblatt, 1874, No. 55

‡ Ueber Coma diabeticum, Berliner Klinische Wochenschrift, 1880, No. 1.

‖ Op. cit

§ Physiologische Chemie, page 482.

¶ Diabetic Coma Acetonæmia, British Medical Journal, 1878, vol. i., p. 73.

the acetone theory were instrumental in establishing the lipæmic condition of the blood in diabetes, and Czerny's account of symptoms in a case of fat embolism led Sanders and Hamilton to advance the theory that "the peculiar terminal dyspnœa and coma of diabetes are due to lipæmia and fat embolism rather than to acetonæmia. Setting aside the acetonæmia theory of diabetic coma as untenable, but being forced to acknowledge that the neuropathic and chemical explanations suffice in some cases, it would seem to justify the view that this diabetic terminal disorder had a multiple origin. In some cases we may conceive that the direct cause is the CO_2 poisoning the blood in lipæmia, a view warranted by the fatty infiltration of the liver found in the cases cited by Gamgee; that fat embolism from lipæmia may also be a cause in one class of cases, while pneumogastric nervous interference mainly by progressive degeneration either of centers or nerve tracts may account for another series.

A recent contribution against the acetonic idea, the preliminary communication by Dr. Rudolf von Jacksch,* may be cited as embodying the following conclusions regarding acetonuria in fever generally: First, a red color is produced in the urine by the addition of chloride of iron not only in diabetic coma, but during the course of diabetes without coma, and with great regularity in the eruptive stage of some acute exanthemata. Next come Siebold and Bradbury,† who state that instead of acetone it is aceto-acetic ether that is found in diabetic urine, and setting forth the statements of Tichborne and Attfield, it seems by no means established that the chemists are certain of their tests for either the one or the other of these alleged glycosuric accompaniments.

Lubimoff‡ found "the inferior ganglion of the vagus-trunk atrophied" and abnormally rich in pigment," and Henrat§ once observed a tumor of the right vagus at the level of the root of the lung." Though in neither of these cases is there mention of coma, it is worth while to admit the strong probability of this aspect of

* Prager Medicinische Wochenschrifta, October 5, 1881.

† Martin's Chemists and Druggists' Bulletin, January, 1882.

‡ Virchow's Archiv, vol., lxi. p. 145.

§ Bull. de la Soc. Méd. de Reims, 1874, No. 13 (cited by Senator).

the disease not to be due to any single cause in all cases, but often to separate or conjoint causes, among which in my opinion, the CO_2 poisoing may rank first, fat embolism second, and pneumogastric failure third. On the matter of fat and glycogen-production from sugar and starch in the animal body an interesting chapter may be found in Foster's Physiology, recently published.*

Before dismissing the consideration of fatty infiltration it would be well to call attention to the statements of Beal, Frerichs, and others, that hepatic fat diminution is the rule in glycosuria, and that infiltration occurs in the corpulent, while fatty degeneration of the liver may occur as the result of cachexia and pulmonary phthisis.

As to the cause of the polydipsia, a view that at one time I regarded as original with myself alone, but which I find has been already urged, seems to satisfy the conditions, but the idea has not been properly worked out heretofore:

Setting all theory aside, the simple fact remains that there is an excess of sugar produced in the system in this disease; it is also undeniable that this sugar has an amylaceous origin. Now, if we take the chemical formulæ of starch and sugar, it is obvious that in the conversion of the one into the other *water is abstracted* from the system. Thus $C_{12}H_{20}O_{10}$ (starch) $2C_6H_{12}O_6H_2O$ (starch sugar) differ by $4H_2O$, and in the formation of two molecules of dextrose (Kekulé's term for starch sugar, Miller suggesting the word glucose as generic) from one molecule of starch four molecules of water disappear. The great thirst in cholera is known to be due to the loss of the watery constituents of the blood, and the diabetic thirst may be similary caused. That the great amount of fluid ingested in the latter disease should fail to assuage thirst is not to be wondered at when we consider that the sugar production goes on comparatively at a distance from the intestine in viscera and vessels not readily accesible or to be rapidly reached by draughts of water intended to resupply the abstracted serum. This process may be compared to the attempt to extinguish a fire in some inner room of a house by deluging the building and all the other apartments with water.

* Foster's Physiology, edited by Reichert, American edition, 1880, p. 590, et seq.

The new science of organogeny promises to give us clearer ideas of hepatic functions as well as broader views of man's position in the animal scale. Heretofore we have been compelled to rest content with the meager details set forth so voluminously by Richard Owen, but upon which Huxley improved immensely. Gegenbauer inaugurated with Hæckel an era in these matters, and today the apperance of Balfour's second volume on embryology, devoted more especially to vertebrates, is hailed by biological and pathological students everywhere with satisfaction.

Comparative cellular pathology and histology generally, in connection with a less narrow physiological chemistry, will achieve wonders in the future toward a better understanding of the life processes.

When we consider how much vagueness there is in the writings of those who have sought an explanation of the office of the liver, as well as of other structures in the animal economy, a vagueness prevailing in the works of such as Claude Bernard and Frerichs, is it not time to think that want of catholicity is at the bottom of our ignorance? Of course it is not to be expected that one or a score of investigators can cover a universe of comparative histological observations, but it is safe to assert that until organogeny has been thoroughly worked out in other vertebrate forms than man we are doomed to narrow-minded views of the significance of important viscera.

CONCLUSIONS.

Glycosuria is a more appropriate name for the disease known by the several designations diabetes mellitus, mellituria, etc., though glycæmia is the true pathological condition.

The literature is more voluminous than satisfactory, and consists mainly of repetitions of the older views.

Too many changes have been rung upon the necessity for abstinence from amylaceous diet, urine analysis, etc., and too little has been accomplished in the way of autopsies or a consideration of the probability of rational chemical treatment.

Statistics are lacking in establishing heredity and other matters as factors. Climatic influences do not seem to have been considered at all, and especially have the neurological bearings of the dis-

ease received too little attention except in the routine of "diabetic vaso-motor tracts."

Similarly the liability to the disease of sexes and at different ages is only apparently settled.

Too many uneliminated sources of error have been mixed up with the records as far as I have examined them.

The causes of glycosuria are multiple, hence the necessity for individualization in diagnosis and treatment.

The Bernardian view that "glycogenesis is a normal physiological phenomenon accompanying all the manifestations of life in animals and plants," deserves serious consideration in connection with accordant modern biological revelations. The tendency has been to consider the disease from the pathological stand-point alone. Nevertheless Bernard does not seem to have laid any stress upon the liver being simply the sugar-forming organ *par excellence* only, and that every organ, in fact every cell, possesses this function to a greater or less extent.

Comparative histology and physiological chemistry promise to become powerful aids in clearing up obscure points in disease, and inasmuch as we are to consider glycæmia from the physiological rather than the pathological stand-point, especially should the recent science of organogeny be cultivated.—*Boston Medical and Surgical Journal.*

A PROPOSED BILL TO REGULATE THE PRACTICE OF MEDICINE IN MICHIGAN. BY HENRY B. BAKER, M. D., LANSING, MICHIGAN. (Reprint from the Michigan Medical News, October 10, 1882.)

I submit herewith a copy of my proposed bill to regulate the practice of medicine, first published in the *Physician and Surgeon*, Ann Arbor, Mich., November, 1880, but here somewhat amended, attention having been given to some suggestions made by persons who have also given the matter careful thought.

Some have proposed that the State accept diplomas, as they are accepted by the State Board of Health of Illinois; but it

seems to me that the public can well take advantage of the natural rivalry of the colleges, and thus elevate the standard of medical education by a law which shall practically set each college in Michigan to watch each other one in this State, and all others whose graduates shall practice here. Every college would have a greater inducement than now to have its graduates creditable to it; because some of its graduated would be publicly tested and compared with those of other colleges.

Objection has been made that by this bill the great body of physicians in the State would have no voice in the proposed examining board. To this it may be replied that they have no voice now; and that this bill is not drawn for the especial and exclusive benefit of physicians, but is from the standpoint of one endeavoring to act for the interests of the general public. It is believed that the public would have had protection long ago if it had not been for the unconquerable disagreements among medical practitioners. It is not probable that the several thousands of medical proctitioners in Michigan will soon agree upon a plan; because they include all shades of belief and all degrees of intelligence, from the "medicine man" up to the highest type of physician known. But if some such law as is here proposed shall be enacted and enforced for one generation, the next generation of physicians will probably be of a type fit to control the interests of the public in relation to the medical profession.

But while this bill was not drawn for its direct benefits to physicians, its author believes that, if enacted into law, it is likely to accomplish what all the foremost physicians have professed to seek, namely, the advancement of the standard of those who profess and practice medicine. Let any person who questions this study the nature of the examination proposed in section 9, and consider that it is to be participated in by representatives of colleges from which many of the leading physicians in this State graduated, that results of the examinations will become to a certain extent public property, and ask himself whether a majority of the persons now actually practicing medicine in this State were ever qualified to pass such an examination.

The bill does not propose to interfere with any person now practicing in Michigan; but it proposes that, after the act passes,

no unqualified person shall begin to practice medicine in this State. My view is that by such a regulation, the number of ignorant doctors would soon be greatly lessened, and the dignity and honor of the medical profession greatly promoted; and this implies greatly increased safety of human life.

THE PROPOSED BILL.

SECTION 1. *The people of the State of Michigan enact*, That, from and after the time when this act shall take effect, no person shall begin the practice of medicine or of any branch or department thereof (except dentistry), or profess to begin the practice thereof, in this State, without first exhibiting evidence of qualifications for such profession in accordance with the provisions of this act. In this section, the term "begin the practice of medicine in this State," shall not apply to any person who at the time of the passage of this act is actually practicing medicine in this State; *provided*, that such person shall have registered as a practicing physician, as provided in this act.

SECTION 2. A State Board of Medical Examiners is hereby constituted as follows: The faculty of each legally-constituted and reputable medical college in this State, authorized by law to confer the degree of Doctor of Medicine, and actually existing and teaching as such a college, shall biennially name one member, the Superintendent of Public Instruction shall biennially name one member, and the State Board of Health shall biennially name one member; of the persons thus named in the first instance, six shall be appointed by the Governor with the advice and consent of the Senate, and when duly qualified, and when their oaths of office shall have been filed in the office of the Secretary of State at Lansing, they shall organize as a State Board of Examiners, and shall elect from their number a president, a secretary, and such other officers as their organization may require, and shall adopt and publish rules for procedure. *Provided*; that the failure of any college, or of all the colleges, to name a candidate for membership shall not cause a failure to organize or continue the Board; but the Governor or the Governor and Senate shall appoint the six members in the first instance, and two members biennially thereafter, and those actually nominated,

appointed and legally qualified, shall organize and perform all the duties of the State Board of Medical Examiners; *Provided* further, that no teacher, professor, lecturer, or officer of any of the before-mentioned colleges, shall be eligible to membership except as a representative to the college to which he belongs. Any vacancy in the Board may be filled, until the next regular session of the legislature, by the Governor.

SECTION 3. The term of office of each member first appointed shall be decided by lot, so that the term of two members shall expire every two years; and the term of office of each member appointed thereafter shall be six years.

SECTION 4. It shall be the duty of the State Board of Medical Examiners to organize as a Board immediately after this act takes effect, and proceed at once to prepare plans for a record-book for the use of the county clerks, blank forms for returns by the county clerks to the State Board of Medical Examiners, and such other blanks, circulars, instructions, etc., as may be necessary to carry this act into effect in the first instance, and with a view to its continuance, and to cause such record-books, blank forms, and circulars to be made by the State printers and binders, and to cause to be given to the Board of State Auditors, for audit and payment out of the general fund, bills for such printing and binding, duly certified by the State printers and binders and by the Secretary of the State Board of Medical Examiners.

SECTION 5. The expenses of the State Board of Medical Examiners, and the compensation of its members, shall be paid out of money collected by the Board from the candidates examined, in accordance with section 6 of this act; *Provided*, that the expenses of starting the work of registration of physicians shall be paid as specified in section 4 of this act.

SECTION 6. Each candidate for examination shall pay to the Board or its treasurer, the sum of —— dollars.

SECTION 7. The State Board of Medical Examiners shall keep a record of all examinations made by it, which record shall include statements of items requisite for identification of the person examined; such as the name, age, sex, color, height, color of hair, color of eyes, and other items if necessary; the names

of the examiners, specifying the one who examined each candidate in each subject, the subjects in which each candidate passed successfully, those in which he failed to pass, and his standing in each subject.

SECTION 8. In each year the State Board of Medical Examiners shall make a report to the Governor, which report shall include accounts of receipts and expenditures by the Board, statements of the number of candidates examined, the number and names of those passed and the number rejected, copies of the questions asked—which shall not all be the same in any two years—and copies of rules and regulations of the Board of Examiners; also the number of registered practitioners in each county, as reported to the Board by the county clerks.

SECTION 9. It shall be the duty of the State Board of Medical Examiners to examine each candidate for the practice of medicine or of any branch of the medical practice, as to proficiency in the English language and in the sciences of anatomy, phisiology, pathology, ætiology, chemistry and toxicology, as follows: Relative to the English language, the examination of each candidate shall be such as to ascertain whether the candidate has sufficient intelligence and education to enable him to read and write understandingly, accurately and logically, on such topics as are likely to arise in the course of his studies and in his relations with those who will fill his prescriptions, act as nurses, be his patrons, or officially consider his testimony in court. Relative to anatomy the examination shall be such as to ascertain whether the candidate has sufficient knowledge of the subject to enable him or her to explain the nature and relative position of the different structures in any part of the body, with reference to an injury, surgical operation, or other practical question connected with any of the several branches of medical practice. With reference to physiology, the examination shall be such as to ascertain whether the candidate is able to explain the normal function of each important organ in the human body, so far as the same is known and established in science. With reference to pathology, the examination shall be such as to ascertain whether the candidate is able to explain to one familiar to the science the

usual changes which occur in the structures and functions of the different organs, systems and parts of the human body in each of the common diseases. The examination in ætiology shall extend to what is known of the causes of the principal diseases which prevail in this State. The examination in chemistry shall include tests of the candidate's knowledge of the characters of acids, bases, alkaloids, alcohols and ethers, the reactions which occur under given circumstances between different chemicals or substances used as medicines, the chemistry of the blood and other fluids and solids of the human body, the proximate analysis of urine, the normal composition of cow's milk, and the chemistry of foods, nutrients and drinks. The examination in toxicology shall be sufficient to indicate the candidate's knowledge of the most common poisons, the nature and appearance of each, the common sources of each, the effects upon the healthy human being, poisonous and fatal doses of each poison, tests for poisons, and the chemical and household antidotes for the poisons. In each of these examinations questions upon which only opinions can be expressed shall not be asked; but in examinations in the English language the questions shall be restricted to established usage, and in the sciences they shall be restricted to established and demonstrable knowledge, accepted as such by those who teach those sciences.

SECTION 10. The State Board of Medical Examiners shall grant to candidates who pass a satisfactory examination in the several subjects required by section 9 of this act, a certificate, under the seal of the Board, stating when they were examined and in what subjects they passed an examination. Provided that the Board may decline to examine or to grant a certificate to any candidate whose moral character is bad.

SECTION 11. It shall be the duty of the clerk of each county in this State to receive the books, instructions, blank forms for returns, etc., prepared in accordance with section 4 of this act; to make and keep a record of all physicians entitled to be recorded under this act; and to report annually to the State Board of Medical Examiners, at Lansing, the names, post-office addresses, etc., of physicians recorded during the year, and such

other facts as are required in the instructions of the State Board of Medical Examiners, in order to fulfill the intent of this act.

SECTION 12. Any person who at the time of the passage of this act is actually practicing as a physician in this State, may, at any time within ——— months after this act shall take effect, apply to the clerk of the county in which he resides, to be recorded as a physician, in manner as follows: The application shall be on a blank prepared by the State Board of Medical Examiners, and supplied by the county clerk, and shall specify the time and place of such practice, the "school," pathy, specialty, or system of therapeutics or other branch of medicine practiced, the time and place of graduation as a doctor of medicine, the age, sex, color, place of residence and post-office address of the applicant, and such other facts as the State Board of Medical Examiners shall deem important for purposes of identification or to be placed upon record, and shall provide for in the blank forms or instructions prepared by such State Board.

SECTION 13. Upon the receipt of an application as specified in section 12, duly signed and sworn to by the applicant, and attested by two witnesses before some person known to the county clerk to be authorized to administer such oaths, the county clerk shall make the record contenplated by this act; *provided* such sworn application shall show that the applicant has practiced medicine, as specified in section 12, for the time and as otherwise required by this act, in order to authorize a person to practice medicine in this State; and *provided* further, that the application shall reach the county clerk within ——— months after this act takes effect. A practitioner concerning whom such record is made, shall be considered a legally-registered practitioner of medicine in that county.

SECTION 14. At any time after this act shall take effect, upon receipt of a certificate issued by the State Board of Medical Examiners, stating that the applicant has passed the examination required to be made by the Board, together with an application similar to that specified in sections 12 and 13, including also a similarly sworn and attested statement that the applicant is the same person examined, and to whom the certificate was issued,

the county clerk shall make the record of the applicant as a practitioner of medicine, and such practitioner shall be authorized to practice medicine in that county.

SECTION 15. In case a practitioner removes from one county to another, it shall be the duty of the practitioner to place upon record with the clerk in the county from and the county to which he removes, his correct post-office address, and to cause a certified copy of the original record to be made and recorded as specified in this section. A practitioner may be recorded in as many counties as he pleases, but his post-office address and residence must, in each case, be specified. Upon application, together with a copy of the record of himself as a practitioner, certified by the clerk of a county to be an accurate and complete copy of the original record, together with a sworn and attested statement by the applicant that he is the person described in the original record, and that he intends to practice medicine within the county in which he thus applies and other than that in which the record was first made, the clerk of the county shall make and keep a record, which shall include the first record, and such other facts as the State Board of Examiners shall specify in its instructions.

SECTION 16. A certified copy of the record of any practitioner may be obtained by any person from the county clerk upon payment of the proper or the usual fee for such service.

SECTION 17. No person who practices medicine, surgery or midwifery, in any of their branches (except dentistry), shall be able in any of the courts of this State to collect pay for professional services rendered subsequently to the time stated for this abt to go into effect, unless he or she was, at the time such professional services were rendered, duly registered as a medical practitioner according to the several provisions of this act.

SECTION 18. Whoever violates a provision of this act shall forfeit a sum not exceeding ——— dollars. It shall be unlawful for any person to practice, or profess to practice medicine, surgery, obstetrics, or any art of healing, or treatment of the sick (except dentistry) or receive pay for practicing in this State, except there shall be in the office of the clerk of the county in which the practice is performed, a record of such person as a

practitioner, in accordance with the several sections of this act; and if any such person who has not complied with this act, and who has not been thus authorized, shall practice or profess to practice medicine, surgery, or the art of healing, or any of their branches, whether of therapeutics, obstetrics, surgery, or any other department thereof (except dentistry), in this State, he or she shall, be deemed guilty of a misdemeanor, and on conviction thereof, shall be liable to a penalty in any sum not exceeding ——— dollars, and to imprisonment not exceeding ——— years.

SECTION 19. It shall be the duty of the State Board of Health, and of the health officer and local board of health in each township, city and village, to co-operate with the State Board of Medical Examiners, which is hereby charged with the duty of securing the fulfillment of the requirements of this act.

SECTION 20. The Board of State Auditors shall, if required, provide and furnish office-room at Lansing for the State Board of Medical Examiners.

THE VOMITING OF PREGNANCY. Read before the Philadelphia County Medical Society, September 13, 1882. BY WILLIAM B. ATKINSON, M.D.

Perhaps no condition of the pregnant woman is so full of annoyance, and at times so liable to lead to disastrous consequences, as the nausea which occurs particularly in the early months. Totally absent with some, with others it becomes a source of distress and danger, ceasing only with the expulsion of the fœtus or the death of the patient.

While the latter extreme is very rare, the constant spitting, nausea, or vomiting is frequently the accompaniment of a pregnancy, rendering the life of the woman a burden, and she only obtains a certain degree of comfort when, under the influence of anodynes, sleep secures for her a respite.

The limits of an introductory paper will not permit of any extended remarks beyond the strict line marked out by your busi-

ness committee,—"The Prevention and Treatment of the Vomiting of Pregnancy."

Now, in order that we may be prepared to treat or prevent a disease, it is eminently necessary that we should understand its cause, its real nature. Undoubtedly this condition results from two causes. In the early stages, the nausea, etc., are due to sympathetic disturbance of the stomach. Later, we have added direct pressure upon and interference with the functions of that viscus.

Now, these causes act with greater or less power as they occur in a patient with an irritable stomach, one prone to be disturbed by the slightest irregularities in food or digestion, or in one who has an ostrich-like power which enables her to load the stomach and carry through to the bowels matters which can only be partially digested, and must eventually pass away as foreign bodies.

With the hope of making pregnancy so comfortable that the ordinary objection to this condition on the part of the woman may be greatly lessened, the entire prevention of nausea and vomiting has been proposed and sought for by many obstetricians.

We must not forget at this point that in earlier days, and even now to a limited extent, it was believed that a sick pregnancy was a healthy one, and many practitioners, when these symptoms were absent, endeavored to imitate them by the employment of ipecacuanha and similar drugs.

It is difficult to understand how to proceed to prevent a condition which has not presented itself, and which may never occur. For we find in practice that a large number of women never exhibit the slightest nausea in any of their pregnancies and many others suffer so little that it is deemed of no moment.

We may, indeed, having other reasons to regard the woman as pregnant, advise her to avoid carefully all articles of food which are likely to give rise to irritable stomach, and also to observe care as to the regularity of her meals and habits. Beyond this we have no indications by which to be guided. The treatment of this trouble may then be considered under the heads of its relief when present, and efforts to prevent its return.

In the milder cases it is doubtful how much of the benefit is

due to the remedy, and how much to the course of nature, in which the trouble would disappear spontaneously.

Many of the so-called cures which are so highly vaunted owe their supposed efficacy, in the successful cases, to the fact that little was needed to quiet an irritated stomach, irritated, perhaps, by carelessness or over-indulgence, which was intensified by the condition of the patient. It is only under this view that we can understand the wonderful effects of remedies as diverse as their names.

Therefore we may expect, and almost invariably obtain, relief in the great majority of cases from the use of sedatives and narcotics, as the bromides, chloral, morphia, carbonic acid water; from alkalies; from bitters, by their tonic action on the stomach, as gentian, calumba, quassia, nux vomica, etc.; from stimulants, as brandy, aromatic spirits of ammonia, champagne, the latter acting both by its stimulating quality and by the carbonic acid; from care in diet, carelessness in which frequently produces the earliest symptoms; from hygiene, change of locality, scenery, and occupation.

Those of us who attended the lectures of the late Prof. Charles D. Meigs can recall the convincing manner in which he showed us how to combat this trouble, by requiring the patient to take a cup of tea and a piece of toast while yet in bed, only rising sufficiently to rest upon the elbow while eating, and then to resume the recumbent position until the stomach had time to acquire tone to enable her to arise without the nausea.

It is from these trifling cases that we have constantly heralded the wonderful benefits to be obtained by the use of certain remedies, which soon lose their hold on the profession, and are only recalled as a curiosity in the literature of the medical art.

As such cases are of very frequent occurrence, and demand treatmant, we may mention those remedies which have proved most successful. Thus we have prussic acid in small doses; aconite of which the adminstration of a few drops of the tincture has been found of great benefit; the use of horseradish scraped fine, moistened with vinegar; arsenic, which is with many a favorite remedy; atropia or belladonna, combined with morphia; bismuth, the sub-nitrate, or, as preferred by some, the phosphate;

calumba, highly extolled by Bartholow and others; carbolic acid, adminstered in drop doses; the oxalate of cerium, which at one time was regarded as a specific in these cases; chloral, which is usually prompt, and is best given in the form of an enema; chloroform and ether, either in small doses or by inhalation; the latter has proved useful when sprayed upon the spine; creasote, one of the earliest remedies; sulphate of copper, gr. iv. to water ℥j, five or six drops at a dose; hyoscyamia, which is claimed as effectual when all else has failed; iodine; ipecacuanha, which has recently been reported on by several observers, given in drop doses of the wine in a teaspoonful of water, repeated every hour; pepsin, lactopeptin, and their compounds; nux vomica, five to ten drops of the tincture, and recommended by Bartholow where the nausea is great, with little vomiting, in drop doses; the bromides of potassium and sodium, used by Busey in doses of thirty to sixty grains, dissolved in beef-tea, with the addition of brandy and laudanum, if required by the symptoms, and thrown into the rectum every four hours. Friedrich is tempted to regard the bromide of potassium as a specific in one to two grain doses daily.

Recently we have on most excellent authority, a preparation made of the inner coating of the gizzard of the chicken, dried and reduced to an impalpable powder. In our hands this has frequently acted with great promptness and efficiency. While we may readily, and generally do, succeed in obtaining positive relief for our patients by the employment of some one or more of the above remedies, yet we occasionally encounter a case which obstinately refuses to yield to any remedy by the mouth, everything being rejected almost as soon as it reaches the stomach.

In these instances the happiest results frequently follow medication by the rectum. Especially do we find this to obtain with chloral, which we have known to act speedily and pleasantly in a number of instances. Perhaps a better plan is the use of chloral, morphia, and belladonna or atropia, combined in a mucilage or in the form of a suppository. In several cases we have thus obtained a tolerance of food by the stomach, and thus we have relieved a threatened death by starvation.

In other cases we have obtained even better results by direct

contact of these remedies with the os, and even within the cervix of the uterus.

In one case where, owing to the animal instincts of the husband, the nausea and vomiting were constantly reproduced, we each time succeeded in speedily checking it by passing a suppository of morphia, belladonna, and hyoscyamus up to the os, and keeping it closely applied.

Tanner employs suppositories made of belladona, gr. iij; hyoscyamus, gr. x; and iodide of lead, gr. viiss.

Injections, both rectal and vaginal, are advocated by many, and Dr. Greene has succeeded with warm olive oil, after failing with warm water. Cold to the epigastrium, small pieces of ce swallowed or passed into the rectum or vagina, have proved serviceable.

As might be expected electricity has its advocates, and Gaillard Thomas esteems it higher than any other remedy. A broad, flat electrode, made by stitching a flat sponge to sheet rubber, he fixes by means of adhesive plaster on the epigastrium, and a similar one under the spine, the patient lying on her back. A gentle current is passed, and continued for ten or even twenty-four hours.

Da Venezia, in a similar case, after all else had failed, used a faradic current of moderate strength, one rheophore being applied to the side of the neck along the vagus, the other to the epigastrium. The patient was relieved at once, and after the fourth application was cured.

J. Marion Sims employs caustic to the os, even when the parts appear perfectly healthy. He claims the best results from this method.

It would appear that this treatment is that which in obstinate cases promises the best results. Especially is it indicated when an examination reveals erosion or other disease of the os uteri. Originally, the sole dependence was upon upon nitrate of silver, but equally good results are obtained by the glycerole of iodine.

Tannin, carbolic acid, in short a great variety of remedies capable of relieving engorgement, erosion, or whatever evil condition may be present, have been found to act promptly in relieving the nausea, etc.

From the remarks of Dr. Sims and from the results in general practice it would appear as though all that is required is a means of producing an impression of a positive nature at the real seat of the affection, the os uteri. Hence we find severe cases are frequently at once terminated by ordinary anodyne or astringent injections, applied so as surely to produce their effect upon the os uteri.

While there is no doubt as to the safety of these applications properly employed, it is much to be questioned whether the same may be said of the plan proposed and carried out by some practitioners abroad,—that is, the dilatation of the os with the finger. No doubt such a method would at once relieve the nausea, but at the same time it might be anticipated as extremely likely to result in an abortion. For this reason I would hesitate as to its employment until every other remedy had failed, and the question had arisen whether we should not sacrifice the child to save the mother.

I earnestly believe that the question of premature delivery will rarely, if ever, occur when the treatment which I have so roughly sketched has been properly employed.

In this connection we may allude to the cases, though rare, where the husband has been the victim of nausea, while the pregnant wife was enjoying her usual health. Here we certainly cannot regard it as the result of sympathy between the womb and the stomach.

Before closing the subject of treatment I may mention that Pinard obtained immediate relief in several obstinate cases by the employment of inhalations of oxygen. I am not aware that it has been tried in this country.

A valuable aid, by allowing complete rest for the stomach, is the employment of rectal alimentation. Dr. H. F. Campbell has employed this plan in a number of instances, and with most gratifying results. Twice each day he injects very slowly and gently about eight ounces of beef-tea or some similar nutritious fluid. The advantages are complete rest for the stomach while nutrition is readily maintained. In the intervals between the injections a full goblet of water not quite cold was twice given, so as to supply the requisite amount of fluid.

In conclusion, permit me to sum up what I think is the duty of the practitioner in these cases:

The most complete rest of body and mind.

The avoidance of all forms of diet save those of easy digestion and assimilation.

The relief of the early symptoms by some one of the articles mentioned under the head of medication. Unless prompt relief is obtained, the use of chloral, morphia, belladonna, or hyoscyamus, or their combination, by the rectum or by the vagina. In the latter case it is important that we should first carefully cleanse away the discharge usually found clinging to the os, and maintain them there by the usual methods.

This failing, apply to the os and cervix, if need be, the glycerole of iodine or the nitrate of silver, and follow this by an application of the anodynes, as before.

If the vomiting is now great, abandon the stomach as a depot for food, and employ rectal alimentation solely. In each injection we may include with the nutrient chloral to aid in procuring complete rest.

To relieve the intense thirst which is generally present, we may allow the patient to swallow at intervals small lumps of ice, or to drink iced carbonic acid water, which is now so readily obtained from the siphon. Of course, just sufficient of this should be taken to relieve the throat at the momeut.

I do not consider the dire alternative of induced abortion, as such a procedure rarely becomes necessary, and should only be employed after the most careful deliberation, and after a council of physicians have decided it to be imperative.—*Philadelphia Medical Times.*

SEX AND RACE.—In most European nations the proportions of male births to female is as 105 to 100. Among the Jews, however, the proportion rises to 110 or 120 to 100. This is thought to be due to the fact that marriage is earlier among the Jews.—*Medical Record.*

to a New York *Sun* reporter. "People have discovered that they are not only of great service in the alleviation of extreme pain, but that they afford a convenient sort of respectable intoxication."

SINCE the massacre in Alexandria, Egypt has been recommended as a health resort. Dr. Edith Pechey thinks that phthisical and rheumatic patients will be greatly benefited, if they are careful in guarding themselves against the night and morning chills, in taking trips on the Nile.

AT the end of 1881 there were 2,218 registered insane persons in New South Wales, or 119 more than the previous year, and 36 in excess of the average yearly increase. The percentage of deaths for the year was 5.46, the lowest since 1865.—*Austral. Med. Gazette.*

HOMŒOPATHY IN THE COOK COUNTY HOSPITAL, CHICAGO.—
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Items.

MEDICAL NEWS.

THE Fifteenth edition of the United States Dispensatory will be ready in January, 1883. The editors are Dr. H. B. Wood, Professor of Materia Medica and Therapeutics in the University of Pennsylvania, Joseph P. Remington, Professor of Pharmacy, and Samuel B. Sadtler, Professor of Chemistry, in the College of Pharmacy, Philadelphia. The revision has occupied about three years, and has been in all respects most thorough and complete—embracing the most recent discoveries in materia medica, pharmacy, chemistry and therapeutics.

The relation of the work to the United States Pharmacopœia will be fully maintained, whilst the encyclopœdic character of the Dispensatory will be developed to the greatest extent. The new pharmacopœia will be in all its parts fully expounded and discussed, and the most recent non-officinal medicines, as well as those long out of date, will be carefully considered in the second part of the work.

THE Congress of Austrian Archæologists, recently in session at Salzburg, was the scene of an interesting discussion of the human jaw-bone, in which the proportions of a giant were found associated with the teeth of a child, which was dug out, at Stamberg, in Moravia, from under a formation containing bones of the reindeer, snow-owl, cave-bear, and other Arctic animals.—*Popular Science Monthly.*

POPULARITY OF HYPODERMIC SYRINGES.—"There are one hundred hypodermic syringes sold now for each one that found a purchaser a few years ago," said a dealer in surgical instruments,

to a New York *Sun* reporter. "People have discovered that they are not only of great service in the alleviation of extreme pain, but that they afford a convenient sort of respectable intoxication."

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HOMŒOPATHY IN THE COOK COUNTY HOSPITAL, CHICAGO.—Under recent rules, one-fourth of all patients on the medical side, and one-fifth of the surgical cases are placed under the care of the homœopathic internes. No consultations allowed.—*Medical Record.*

MARRIAGE LAWS.—Among the Omahas and Poncas, a man can marry his brother's widow. Widows, however, must wait four years before re-marrying. But, if a widower remains single for two, three, or four years, he must remain so forever.

SOME enterprising dentists, among them Drs. Brophy and Talbot, are about starting in Chicago a Dental Infirmary, for the purpose of giving instruction to medical students, and of furnishing gratuitously to worthy poor their skillful services.

DR. T. DAVIS FITCH has much improved in health. He is now attending to his practice, as before his apoplexy, and conducts successfully his gynæcological clinic at the Woman's Medical College every Saturday afternoon.

AT Philadelphia, October 19, several explosions of sewer gas took place along Twentieth street, and the gas caught on fire. This may suggest either a new mode of constructing sewers or a new means for disinfecting them.

DR. HENRY T. BYFORD has safely returned from his bridal tour, and is again in active pursuit of his professional work. We congratulate him on his marriage, and hope he will add to the number of his illustrious name.

DR. JOHN D. M. CARR, whose death took place recently, has been for fifteen years a well-known physician of this city. In addition to being an excellent physician, he was an active and prominent Free Mason.

THE late epidemic of cholera in Japan caused 2,000 deaths in Yokohama alone. In Manilla, Philippine Islands, the mortality from the same cause numbered from 50 to 300 a day.—*Med. News.*

MR. W. H. RIDING, in *Harper's Monthly* says that no occupation in the United States stands higher numerically, socially, or financially, than the medical profession.

A CASE of rupture of the stomach is reported in which a dose of lobelia was given to a patient of intemperate habit, by an irregular practitioner. The patient died without vomiting.

ALLUDING to the late troubles in the Cook County Hospital, the *Medical Record* says: "Between politics and homœopathy our Chicago brethren seem to have a hard time.

M. TARNIER of the Maternité, Paris, is the inventor of a baby-incubator which will do for the human race what the egg-incubator has done already for poultry.

MR. T. R. BAKER, in a paper "On the Permeability of the Linings of House Walls to Air," deprecates wall-paper and advocates the old-time whitewashed walls.

Dr. D. G. BRINTON, of Philadelphia, is publishing "The Chronicles of the Mayas," being the first volume of a "Library of Aboriginal American Literature."

THE celebrated author of the Treatise on Comparative Embryology, Prof. F. M. Balfour, lost his life July 19, while ascending the Alps, near Mt. Blanc.

SCARLET fever is widely disseminated through Chicago.

THE Chicago Dental Infirmary has just been licensed by the Secretary of State.

ONE hundred thousand dollars have been appropriated by Congress for the erection of an army and navy hospital at Hot Springs, Arkansas.

SAYS Blackmore: "The common lay mind hates the lawyer, as the lay body objects to the doctor, and the soul is timorous of the parson."

THE annual congress of the German Anthropological Society met at Frankfort, August 14, with five hundred members in attendance.

THE celebrated chemist, Friederich Woehler, Director of the Chemical Institute at Göttingen, died September 25, aged 82 years.

ANTHROPOLOGY.—What seems evident foot-prints of men have been found at Carson City, Nevada, in a Quarternary sandstone.

TWO hundred and sixty-seven medical works were published in Japan in the Japanese language in 1881.—*Med. News.*

THE State of Maine has recently elected Dr. Frederick Robie, Governor.

CLINICS.

MONDAY.

Eye and Ear Infirmary—1.15 to 2.15 p. m., Otological, by Dr. Schaefer; 2.15 to 3.30 p. m., Ophthalmological, Dr. Holmes.
Mercy Hospital—2 p. m., Medical, Profs. Hollister and Quine.
Rush Medical College—3 p. m., Dermatological and Venereal, by Prof. Hyde.
Woman's Medical College—2 p. m., Dermatological and Venereal, by Prof. Maynard.

TUESDAY.

Cook Co. Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Woman's Medical College—10 a. m., Prof. Ingals.

WEDNESDAY.

Chicago Medical College—2 p. m., Eye and Ear, by Prof. Jones.
Rush Medical College—2 p. m., Medical by Prof. Bridge; 3 p. m., Ophthalmological and Otological, by Prof. Holmes; 3 to 4 p. m., Diseases of the Chest, by Prof. Ross.
Woman's Medical College—2 p. m., Eye and Ear, by Dr. W. T. Montgomery; 3 p. m., Diseases of Children, by Prof. Chas. W. Earle.
Eye and Ear Infirmary—2.30 p. m., Dr. E. J. Gardiner.

THURSDAY.

Chicago Medical College—2 p. m., Gynæcological, Prof. Dudley.
Rush Medical College—2 p. m., Diseases of Children, by Prof. Knox; 3 p. m., Diseases of the Nervous System, by Prof. Lyman.
Eye and Ear Infirmary—1.15 to 2.25 p. m., Otological, by Dr. Schaefer; 2.15 to 3.30 p. m., Ophthalmological, Dr. Holmes.
Woman's Medical College—3 p. m., Surgical, by Prof. Owens.
College of Physicians and Surgeons—2 p. m., Medical, by Prof. S. A. McWilliams; 3 p. m., Surgical, by Prof. R. L. Rea.

FRIDAY.

Cook County Hospital—2 to 4 p. m., Medical and Surgical Clinics.
Mercy Hospital—2 p. m., Medical, by Prof. Davis.

SATURDAY.

Rush Medical College—2 p. m., Surgical, by Prof. Gunn.
Mercy Hospital—2 p. m., Surgical Clinic, by Prof. Andrews.
Chicago Medical College—3 p. m., Neurological, Prof. Jewell.
Woman's Medical College—2 p. m., Gynæcological, by Prof. Stevenson.
College of Physicians and Surgeons—2 p. m., Diseases of the Chest, by Prof. S. A. McWilliams; 3 p. m., Gynæcological, by Prof. A. Reeves Jackson.

Daily Clinics, from 2 to 4 p. m., at the Central Free Dispensary, at the South Side Dispensary and at the West Side Dispensary.

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